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THE JOURNAL OF
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THE DIVISION OF LABOR IS LIMITED BY THE EXTENT OF THE MARKET

GEORGE J. STIGLER
Columbia University

ECONOMISTS have long labored with the rate of operation of firm and industry, but they have generally treated as a (technological?) datum the problem of what the firm does—what governs its range of activities or functions. It is the central thesis of this paper that the theorem of Adam Smith which has been appropriated as a title is the core of a theory of the functions of firm and industry, and a good deal more besides. I shall (1) make some brief historical remarks on the theorem, (2) sketch a theory of the functions of a firm, (3) apply this theory to vertical integration, and (4) suggest broader applications of the theorem.

I. HISTORICAL INTRODUCTION

When Adam Smith advanced his famous theorem that the division of labor is limited by the extent of the market, he created at least a superficial dilemma. If this proposition is generally applicable, should there not be monopolies in most industries? So long as the further division of labor (by which we may understand the further specialization of labor and machines) offers lower costs for larger outputs, entrepreneurs will gain by combining or expanding and driving out rivals. And here was the dilemma: Either the division of labor is limited by the extent of the market, and, characteristically, industries are monopolized; or industries are characteristically competitive, and the theorem is false or of little significance. Neither alternative is inviting. There were and are plenty of important competitive industries; yet Smith's argument that Highlanders would be more efficient if each did not have to do his own baking and brewing also seems convincing and capable of wide generalization.

In the pleasant century that followed on the *Wealth of Nations*, this conflict was temporarily resolved in favor of Smith's theorem by the simple expedient of ignoring the conditions for stable competitive equilibrium. Ricardo, Senior, and J. S. Mill—and their less famous confreres—announced the principle of increasing returns in manufacturing—for

Senior it was even an axiom. The exclusion of agriculture was based on the empirical judgment, not that further division of labor was impossible, but that it was a weaker tendency than that of diminishing returns from more intensive cultivation of a relatively fixed supply of land.

This was hardly a satisfactory solution, and, when Marshall came to reformulate classical economics into a comprehensive and internally consistent system, the dilemma could no longer be ignored. He refused to give up either increasing returns or competition, and he created three theories (of course, not only for this purpose) which insured their compatibility. First, and perhaps most important, he developed the concept of external economies—economies outside the reach of the firm and dependent upon the size of the industry, the region, the economy, or even the whole economic world. Second, he emphasized the mortality of able entrepreneurs and the improbability that a single business would be managed superlatively for any length of time. Third, he argued that each firm might have a partial monopoly —a separate, elastic demand curve for its product—so that, with expansion of its output, the price would usually fall faster than average costs would.

For a time this reconciliation of competition and increasing returns served its purpose, but, as the center of price theory moved toward the firm, Smith's theorem fell into the background. External economies were a rather nebulous category relative to anything so concrete and definite as economists for a time believed the costs of a firm to be. It was pointed out by Professor Knight, moreover, that economies external to one industry may (and perhaps must) be internal to another. The industries in which the economies are internal will tend to monopoly; and, incidentally, it is no longer a foregone conclusion that such economies will be shared with the buyers. Since external economies seemed a refractory material for the popular analytical techniques, they were increasingly neglected.

Marshall's theory of business mortality was also increasingly neglected, with even less explicit consideration. It was not an approach that harmonized well with the economics of a stationary economy, and again the theory was very inconvenient to incorporate into cost and demand curves (especially if one will not use the concept of a representative firm). If the economies of scale within the firm were as strong as Marshall pictured them, moreover, it was not clear that continuously high-quality entrepreneurship was necessary to achieve monopoly. And could the giant firm not grow quickly by merger as well as hesitantly by internal expansion?

Marshall's third theory, of the falling demand curve for the individual firm, lost popularity for a generation because it was incompatible with perfect competition rigorously defined, and this became increasingly the standard model of analysis. And, paradoxically, when the falling demand curve was rediscovered and popularized in the 1930's by the proponents of imperfect and monopolistic competition, they used it not to examine the broad movements of industries and of economies but to focus price theory on the physiology and pathology of the firm.

In 1928, to retrace a step, the neglect of increasing returns had gone so far that Allyn Young felt the need to restore perspective by an emphatic indorsement of the fundamental importance of Smith's theorem: "That theorem, I have always thought, is one of the most illuminating

and fruitful generalizations which can be found anywhere in the whole literature of economics."[1] His position seemed persuasive, but he did not resolve the technical difficulties of incorporating the extent of the market into competitive price theory. Indeed, he openly avoided this problem, asserting that the firm and perhaps also the industry were too small to serve as units of analysis in this area. And so, although Young's and Marshall's and Smith's position is often given lip service to this day, the tributes are tokens of veneration, not evidences of active partnership with the theory of the firm and the competitive industry.

II. THE FUNCTIONS OF A FIRM

The firm is usually viewed as purchasing a series of inputs, from which it obtains one or more salable products, the quantities of which are related to the quantities of the inputs by a production function. For our purpose it is better to view the firm as engaging in a series of distinct operations: purchasing and storing materials; transforming materials into semifinished products and semifinished products into finished products; storing and selling the outputs; extending credit to buyers; etc. That is, we partition the firm not among the markets in which it buys inputs but among the functions or processes which constitute the scope of its activity.

The costs of these individual functions will be related by technology. The cost of one function may depend upon whether the preceding function took place immediately before or in the immediate vicinity, as when hot ingots are processed with a saving of heat. Or the interrelationships among processes may be remote, as when the entrepreneur must neglect production in order to supervise marketing.

Let us ignore for a moment these interrelationships of costs of various functions, in order to achieve a simple geometrical picture of the firm's costs of production. If the cost of each function depends only on the rate of output of that function, we may draw a unique cost curve for it. Furthermore, if there is a constant proportion between the rate of output of each function and the rate of output of the final product (as when every 100 pounds of cement is bagged), we may draw the cost curves of all functions on one graph, and the (vertical) sum of these costs of various functions will be the conventional average-cost curve of the firm.

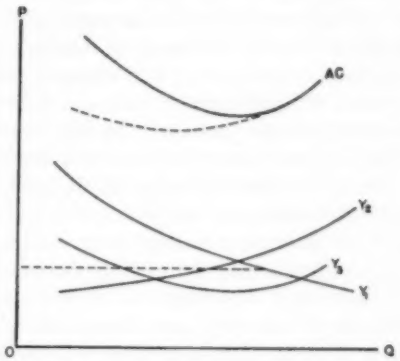

FIG. 1

We should expect to find many different patterns of average costs of functions: some falling continuously (Y_1); some rising continuously (Y_2); some conventionally U-shaped (Y_3) (see Fig. 1). It is not impossible, of course, that the average cost of some operations first rises and then falls.

Now consider Smith's theorem. Certain processes are subject to increasing returns; why does the firm not exploit

[1] "Increasing Returns and Economic Progress," *Economic Journal*, XXXVIII (1928), 529.

them further and in the process become a monopoly? Because there are other functions subject to diminishing returns, and these are, on balance, at least so costly that average cost of the final product does not diminish with output. Then why does the firm not abandon the functions subject to increasing returns, allowing another firm (and industry) to specialize in them to take full advantage of increasing returns? At a given time these functions may be too small to support a specialized firm or firms. The sales of the product may be too small to support a specialized merchant; the output of a by-product may be too small to support a specialized fabricator; the demand for market information may be too small to support a trade journal. The firm must then perform these functions for itself.

But, with the expansion of the industry, the magnitude of the function subject to increasing returns may become sufficient to permit a firm to specialize in performing it. The firms will then abandon the process (Y_1), and a new firm will take it over. This new firm will be a monopoly, but it will be confronted by elastic demands: it cannot charge a price for the process higher than the average cost of the process to the firms which are abandoning it. With the continued expansion of the industry, the number of firms supplying process Y_1 will increase, so that the new industry becomes competitive and the new industry may, in turn, abandon parts of process Y_1 to a new set of specialists.

The abandonment of function Y_1 by the original industry will alter each firm's cost curves: the curve Y_1 will be replaced by a horizontal line (ignoring quantity discounts) at a level lower than Y_1 in the effective region. The cost curve of the product (drawn with broken lines in Fig. 1) will be lower, and, on present assumptions, the output at which average costs are a minimum (if only one such output exists) becomes smaller.

Certain functions are also subject to increasing cost; why not abandon or at least restrict the scale of operation of these functions? The foregoing discussion is also applicable here, with one change. When the industry grows, the original firms need not wholly abandon the increasing-cost processes. Part of the required amount of the process (say, engine castings for automobiles) may be made within the firm without high average (or marginal) costs, and the remainder purchased from subsidiary industries.

In order to give a simple geometrical illustration, we have made two assumptions. The first is that the rate of output of the process and the rate of output of the final product are strictly proportional. This will be approximately true of some functions (such as making parts of a single final product), but it will also be untrue of other functions (such as advertising the product). If we drop the assumption, the substance of our argument will not be affected, but our geometrical picture becomes more complicated.[2]

Our second assumption, that the costs of the functions are independent, is more important. Actually, many processes will be rival: the greater the rate of output of one process, the higher the cost of a given rate of output of the other process or processes. Sometimes the rivalry will be technological (as in many multiple-product firms), but almost always it will also be managerial: the wider the range of functions the firm undertakes, the

[2] We can either draw separate cost curves for the various functions or combine them on one chart, with the scales of the functions chosen so that the optimum amount of each function is shown for the given rate of final output.

greater the tasks of co-ordination. Other processes will be complementary: the greater the rate of output of one process, the lower the cost of a given rate of output of the other processes. A most curious example of complementarity is the circular flow of materials within a plant; thus, in the course of making steel, steel plants supply a large part of their requirements for scrap.

If, on balance, the functions are rival, then usually the firm will increase its rate of output of the final product when it abandons a function; and I think that this is generally the case. For example, in the famous study of the Lancashire textile industry by Chapman and Ashton, it was found that firms engaged in both spinning and weaving in 1911 had, on average, 47,634 spindles, while those engaged only in spinning had, on average, 68,055 spindles.[3] But this is not necessary—indeed, they found the converse relationship in number of looms—and the effect of the range of functions on the size of the firm requires much study before we can reach safe generalizations.

III. VERTICAL INTEGRATION

Many economists believe that, with the growth of firms (and industries?), functions are usually taken over from previous independent industries. For example, United States Steel Corporation now mines its ores, operates its own ore-hauling railroads and ships, and, at the other end, fabricates barrels, oil-field equipment, and houses. (The number of economic views based chiefly on half-a-dozen giant corporations would repay morbid study.)

Broadly viewed, Smith's theorem suggests that vertical disintegration is the typical development in growing industries, vertical integration in declining industries.[4] The significance of the theorem can therefore be tested by an appeal to the facts on vertical integration.

Unfortunately, there are no wholly conclusive data on the trend of vertical integration. The only large-scale quantitative information at hand comes from a comparison of the 1919 study by Willard Thorp with the 1937 study by Walter Crowder of central offices (companies with two or more manufacturing establishments). In 1919, 602 manufacturing companies, or 13.0 per cent of a moderately complete list of 4,635 companies, had two or more establishments making successive products, that is, the product of one establishment was the raw material of another establishment.[5] In 1937, successive functions were found in 565 companies (or 10.0 per cent of a more complete list of 5,625 companies).[6] In 1919, successive functions were found in 34.4 per cent of all complex central offices (companies with establishments in two or more industries); in 1937, in only 27.5 per cent. Multiplant companies probably grew in relative importance during this period, so it is possible that a larger share of manufacturing output came from vertically integrated firms. But, so far as these multiplant com-

[3] S. J. Chapman and T. S. Ashton, "The Sizes of Businesses, Mainly in the Textile Industries," *Journal of the Royal Statistical Society*, LXXVII (1914), 538.

[4] This is not a wholly rigorous implication, however. With the growth of industries, specialism of firms may take the form of dealing with a narrower range of products as well as performing fewer functions on the same range of products.

[5] W. Thorp, *The Integration of Industrial Operation* (Washington, 1924), p. 238. I have omitted railroad repair shops and also the 301 companies having establishments which made successive products, because mining establishments were included.

[6] W. F. Crowder, *The Integration of Manufacturing Operations* ("T.N.E.C. Monographs," No. 27 [Washington, 1941]), p. 197.

panies are concerned, there seems to have been a tendency away from vertical integration.[7]

If one considers the full life of industries, the dominance of vertical disintegration is surely to be expected. Young industries are often strangers to the established economic system. They require new kinds or qualities of materials and hence make their own; they must overcome technical problems in the use of their products and cannot wait for potential users to overcome them; they must persuade customers to abandon other commodities and find no specialized merchants to undertake this task. These young industries must design their specialized equipment and often manufacture it, and they must undertake to recruit (historically, often to import) skilled labor. When the industry has attained a certain size and prospects, many of these tasks are sufficiently important to be turned over to specialists. It becomes profitable for other firms to supply equipment and raw materials, to undertake the marketing of the product and the utilization of by-products, and even to train skilled labor. And, finally, when the industry begins to decline, these subsidiary, auxiliary, and complementary industries begin also to decline, and eventually the surviving firms must begin to reappropriate functions which are no longer carried on at a sufficient rate to support independent firms.

[7] The ratio of "value-added" to value of product is a crude index of the extent of vertical integration *within* establishments. It is interesting to note that in the 17 industries in which this ratio was highest in 1939 in manufacturing, the average number of wage-earners was 16,540. In the 17 industries in which the ratio was lowest, the average number of wage-earners was 44,449. Thus the vertically integrated establishments were in smaller industries than the vertically disintegrated establishments (see National Resources Planning Board, *Industrial Location and National Resources* [Washington, 1943], p. 270).

We may illustrate this general development from the cotton textile machinery industry, much of whose history has recently become available.[8] This industry began as a part of the textile industry: each mill built a machine shop to construct and repair its machines. The subsequent history is one of progressive specialism, horizontal as well as vertical: at various times locomotives, machine tools, the designing of cotton mills, and direct selling were abandoned. When the cotton textile market declined in the 1920's, the machinery firms added new products, such as paper machinery, textile machinery for other fabrics, and wholly novel products, such as oil burners and refrigerators. Indeed, one is impressed that even the longer cyclical fluctuations seem to have affected the extent of specialism in much the same way as have the secular trends.

Of course, this is not the whole story of vertical integration, and it may be useful to sketch some of the other forces at work. The most important of these other forces, I believe, is the failure of the price system (because of monopoly or public regulation) to clear markets at prices within the limits of the marginal cost of the product (to the buyer if he makes it) and its marginal-value product (to the seller if he further fabricates it). This phenomenon was strikingly illustrated by the spate of vertical mergers in the United States during and immediately after World War II, to circumvent public and private price control and allocations. A regulated price of OA was set (Fig. 2), at which an output of OM was produced. This quantity had a marginal value of OB to buyers, who were rationed on a nonprice basis. The gain to buyers

[8] G. S. Gibb, *The Saco-Lowell Shops* (Cambridge: Harvard University Press, 1950); T. R. Navin, *The Whitin Machine Works since 1831* (Cambridge: Harvard University Press, 1950).

and sellers combined from a free price of *NS* was the shaded area, *RST*, and vertical integration was the simple way of obtaining this gain. This was the rationale of the integration of radio manufacturers into cabinet manufacture, of steel firms into fabricated products, etc.

Although nonprice rationing provides the most striking examples of this force toward vertical integration, private monopolies normally supply the same incentive. Almost every raw-material cartel has had trouble with customers who

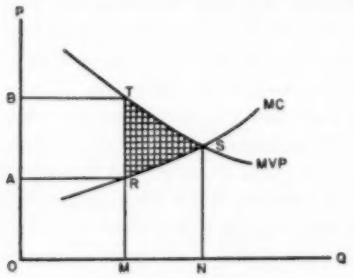

FIG. 2

wish to integrate backward, in order to negate the cartel prices. Since the cartel members are sharply limited in their output quotas, the discounted future profits of a cartel member need not be high, even with very high prices; so it is profitable for buyers to integrate backward by purchase (as well as by seeking noncartelized supply sources). The Rhenish-Westphalian Coal Cartel, for example, was constantly plagued by this problem:

> While a few of the members of the original syndicate agreement of 1893 had been steel companies which produced a part of their own coal and coke requirements, the steel industry, for the most part, had relied upon fuel purchased in the market. The stiffening of prices, coupled with the inelastic terms of sale resulting from the operation of the coal syndicate, now caused the steel companies to seek to free themselves from dependence upon the syndicate.
>
> . . . defensive measures were adopted by all classes of consumers. Some of the large industrial consumers . . . acquired their own mines individually or in groups. Among these were such important companies as the Vereinigte Stahlwerke, Rhenische Stahlwerk-Admiral, Badische Anilin- und Sodafabrik, Norddeutsche Lloyd, Friedrich Krupp, and a number of others representing the electric, gas, railway equipment, rubber and other industries. Also some cities such as Cologne and Frankfurt were among them.[9]

Monopoly is a devious thing, and it leads to vertical integration for other reasons also. A firm cannot practice price discrimination in the stages in which it does not operate; only by fabricating cable could the Aluminum Company of America sell cable at less than the ingot price in competition with copper, while maintaining a higher price on less competitive products.[10] Again, it is possible that vertical integration increases the difficulty of entry by new firms, by increasing the capital and knowledge necessary to conduct several types of operation rather than depend on rivals for supplies or markets.

These remarks are not intended to constitute a theory of vertical integration. There is doubt, indeed, that we want a theory of vertical integration except as part of a theory of the functions of a firm. As soon as one tries to classify the variegated details of production, one finds how artificial and arbitrary "vertical" relationships are. Whether one wishes to treat vertical relationships separately or as part of a general theory, however, Smith's theorem promises to be a central part of the explanation.

IV. WIDER IMPLICATIONS

If Smith's theorem is less than a complete theory of the division of functions

[9] A. H. Stockder, *Regulating an Industry* (New York, 1932), pp. 8, 11, and 36.

[10] D. H. Wallace, *Market Control in the Aluminum Industry* (Cambridge: Harvard University Press, 1937), pp. 218–19, 380.

among industries, it is also something more than this: it sheds light on several aspects of the structure and workings of economies. A few of the implications of the principle of increasing specialization will be discussed very tentatively.

One expects to find some relationship between the functional structure of an industry and its geographical structure —after all, reductions of transportation costs are a major way of increasing the extent of the market. (A remainder is hardly necessary that we are dealing with highly interdependent forces and that unilateral causation is implicitly assumed for simplicity and emphasis.) Localization is one method of increasing the economic size of an industry and achieving the gains of specialization. The auxiliary and complementary industries that must operate in intimate co-operation can seldom do so efficiently at a distance. I venture that, within a market area, geographical dispersion is a luxury that can be afforded by industries only after they have grown large (so that even the smaller production centers can reap the major gains of specialization) and that it must be sacrificed for geographical concentration, once the industry begins to shrink in size.

Closely related to this is the influence of localization upon the size of plant. The individual plants can specialize in smaller ranges of products and functions in highly localized industries (the size of the industry in some sense being held constant). In the United States geographically concentrated industries usually have fairly small plants.[11] There is also some evidence that the plants of an industry are smaller in the larger production centers. For example, in 1937 the average shoe factory in industrial areas had 137 employees, in other areas, 314 employees.[12] The dominance of medium-sized plants in highly localized industries has also been found in England.[13]

During the nineteenth century it was often said that England had the advantage of an "early start"; and this ambiguous statement had an element of truth which Smith's theorem more clearly expresses. As the largest economy in the world, it could carry specialism further than any other country, especially those "general" specialties (like railroads, shipping, banking, etc.) which are not closely attached to any one industry. England's advantage was a big start, as well as an early one.

Those too numerous people who believe that transactions between firms are expensive and those within firms are free will do well to study the organization of England during this period of eminence. In Birmingham, the center of the metal trades, specialism was carried out to an almost unbelievable extent. Consider the small-arms industry in 1860, when Birmingham was still the leading production center of the world:

> Of the 5800 people engaged in this manufacture within the borough's boundaries in 1861 the majority worked within a small district round St Mary's Church. . . . The reason for the high degree of localization is not difficult to discover. The manufacture of guns, as of jewellery, was carried on by a large number of makers who specialized on particular processes, and this method of organization involved the frequent transport of parts from one workshop to another.
>
> The master gun-maker—the entrepreneur—seldom possessed a factory or workshop. . . . Usually he owned merely a warehouse in the gun quarter, and his function was to acquire semi-finished parts and to give these out to specialized craftsmen, who undertook the assembly and finishing of the gun. He purchased

[11] National Resources Planning Board, *op. cit.*, pp. 250 ff.

[12] *Ibid.*, p. 257.

[13] P. S. Florence, *Investment, Location, and Size of Plant* (Cambridge, 1948).

materials from the barrel-makers, lock-makers, sight-stampers, trigger-makers, ramrod-forgers, gun-furniture makers, and, if he were engaged in the military branch, from bayonet-forgers. All of these were independent manufacturers executing the orders of several master gun-makers. . . . Once the parts had been purchased from the "material-makers," as they were called, the next task was to hand them out to a long succession of "setters-up," each of whom performed a specific operation in connection with the assembly and finishing of the gun. To name only a few, there were those who prepared the front sight and lump end of the barrels; the jiggers, who attended to the breech end; the stockers, who let in the barrel and lock and shaped the stock; the barrel-strippers, who prepared the gun for rifling and proof; the hardeners, polishers, borers and riflers, engravers, browners, and finally the lock-freers, who adjusted the working parts.[14]

At present there is widespread imitation of American production methods abroad, and "backward" countries are presumably being supplied with our latest machines and methods. By a now overly familiar argument, we shall often be a seriously inappropriate model for industrialization on a small scale. Our processes will be too specialized to be economical on this basis. The vast network of auxiliary industries which we can take for granted here will not be available in small economies. Their educational institutions will be unable to supply narrowly specialized personnel; they will lack the specialists who can improve raw materials and products. At best, the small economies that imitate us can follow our methods of doing things this year, not our methods of changing things next year; therefore, they will be very rigid. This position has been stated well by one observant citizen of a backward economy, Benjamin Franklin:

Manufactures, where they are in perfection, are carried on by a multiplicity of hands, each of which is expert only in his own part, no one of them a master of the whole; and if by any means spirited away to a foreign country, he is lost without his fellows. Then it is a matter of extremest difficulty to persuade a complete set of workmen, skilled in all parts of a manufactory, to leave their country together and settle in a foreign land. Some of the idle and drunken may be enticed away, but these only disappoint their employers, and serve to discourage the undertaking. If by royal munificence, and an expense that the profits of the trade alone would not bear, a complete set of good and skilful hands are collected and carried over, they find so much of the system imperfect, so many things wanting to carry on the trade to advantage, so many difficulties to overcome, and the knot of hands so easily broken by death, dissatisfaction, and desertion, that they and their employers are discouraged altogether, and the project vanishes into smoke.[15]

The division of labor is not a quaint practice of eighteenth-century pin factories; it is a fundamental principle of economic organization.

[14] G. C. Allen, *The Industrial Development of Birmingham and the Black Country, 1860–1927* (London, 1929), pp. 56–57, 116–17. Commenting on a later period, Allen says: "On the whole, it can be said that specialization was most apparent in the engineering industries in which output was rapidly expanding; while the policy of broadening the basis [product line] was found, mainly, either in the very large concerns, or in industries in which the decline of the older markets had forced manufacturers to turn part of their productive capacity to serve new demands" (*ibid.*, pp. 335–36). The later history of the gun trade, in which American innovations in production techniques were revolutionary, suggest that the organization in Birmingham was defective in its provision for technical experimentation.

[15] "The Interest of Great Britain in America," cited by V. S. Clark, *History of Manufactures in the United States* (New York, 1949), I, 152. Clark adds: "In these words Franklin was but reciting the history of the more important colonial attempts to establish a new industry or to enlarge an old one with which he was personally familiar."

WANT DEVELOPMENT IN UNDEVELOPED AREAS

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I

THE purpose of this paper is to present a theory of want development for the purpose of clarifying our understanding of the process that takes place when unaccustomed spending power becomes available to consumers. It will expound some ideas to be found in current anthropological and psychological literature that pertain to the development of wants, especially economic wants, and out of them will attempt to make a connected theory. Such a theory is essential for a grasp of the relationship between income and the expenditure of income, between expenditure (level of spending, not usually differentiated from level of consumption) and standard of consumption, and between them both and the standard of living.[1] The complexity of the development of wants is shown by this analysis; economists have been taking a good deal for granted that needs further consideration.

The relation of expenditure to income, on the one hand, and to living standards, on the other, is of immediate pertinence in national income, particularly in business-cycle theory. It is also of great importance in weighing the effects in technologically less advanced countries of new investments which increase money incomes. Appreciation of the relationship of expenditure to income is essential for the wise prosecution of Point Four in those countries. Since I have been doing field research along these lines in Guatemala in co-operation with the Inter-American Institute of Agricultural Sciences, I shall use my observations to illustrate the theory.

Psychologists have devoted a great deal of attention to learning, but their discussions for the most part pertain either to how people learn to satisfy a want which already exists or to the process of learning as it relates to education; some of their work on advertising, however, is valuable in connection with the development of economic wants. What the economist wishes to know is how the interests arise which affect the demand for economic goods and services, in the first place, and, in the second place, the reaction of these interests on standards of living, which, in turn, affects further demand and thus influences the results of developmental policies.

But nowhere in the literature of anthropology or psychology, to my knowledge, is there a connected theory of want development. All that we find is pieces of theory, some of which mutually supplement one another. The pieces will be put together which appear to me to be most pertinent to the economist's problem.

The most fundamental influence in any expenditure, of course, is not purchasing power but a disposition to buy, which springs from a want either deep-seated or superficial. For the purposes of this paper it is important to distinguish between the more deep-seated wants, the gratification of which has become a part

[1] See J. S. Davis, "Standards and Content of Living," *American Economic Review*, XXXV (1945), 1–15. This is the *locus classicus* for defining the meaning of terms.

of the people's standard of living, and more superficial "wants," which may be no more than the impulses of a moment and for which no foundation—yet, at any rate—exists in the standard of living. To keep the differentiation clear, I shall use the term "want" to apply only to what is relatively deep-seated and a part of the standard of living; the term "impulse" to apply to a superficial want; and the term "interest" to cover both.[2]

II

I shall discuss what appear to be the most important anthropological-psychological ideas that control the development of wants as four main sets of principles; and I shall discuss a fifth principle that relates primarily to the effects of interest and secondarily to its causes.

Behind all the specific principles of want development, however, is the urge to life itself, which is expressed in man's curiosity, spirit of adventure, desire to experience, and willingness to take a chance. Some psychologists regard this urge as, in a sense, the creator of culture, and others think of it not as a thing-in-itself but as a part of separate drives or dispositions, which I shall soon discuss. It is not important for our purposes here to say which it is, but it is necessary to recognize its working. Otherwise it would be difficult to explain man's willingness to experiment with the new.

In the first general principle of concern to us—the cultural pattern—we shall put the contributions of anthropology and psychology together. From anthropology it is made clear that the consumption of every people takes place in a general framework or pattern common to all the individuals within the culture.[3] These patterns of culture have very important unique elements for every people and must always be taken into account in any business or social policy which introduces change.

An analysis of a pattern of culture reveals that it may be partially interpreted by the presence in it of certain basic dispositions, which we may call "cultural dispositions" although some of them may have a biological origin. In all patterns of culture are found strong reactions to appeals to the senses and strong interests in social intercourse: we may call the source of these interests, for convenience, the "sensory and social dispositions." But also in all cultures are found traces of several other dispositions or generalized types of interest; and the strength of these different ones varies according to the culture. These dispositions are the point of departure for all wants. The psychologist uses this concept, too, though he may not express it in the terms used here.[4] Philosophers,

[2] This distinction, incidentally, is a necessary part of a complete understanding of the irreversibility of the utility function. When an interest has become a want and thus a part of the standard of living, the disutility caused by removing the good that satisfied it may be expected to be greater than the utility which was created when it was first introduced; to remove a good that has not become part of the standard of living, on the other hand, may be expected to cause a loss of utility less than was created when it was first introduced. The idea of irreversibility has been discussed by Jeremy Bentham, *Principles of the Civil Code* (Edinburgh, 1843), I, 304–7 (I am indebted to Donald Regier for calling Bentham's treatment to my attention). But really this idea is a part of the ancient wisdom of mankind and appears, for example, in Pericles' speech for the dead after the Battle of Marathon: "Sorrow is felt at the want of those blessings not which a man never knew but which were a part of his life before they were taken from him." On the other hand, if a man loses something which has not become a "part of his life," the loss may be a positive utility.

[3] See Ruth Benedict, *Patterns of Culture* (New York, 1928), *passim*.

[4] The term the psychologist perhaps most frequently uses to refer to them is "drive," which is a more useful term for the important dispositions of modern Western culture than it is for the contemplative-religious-mystical disposition of a large portion

psychologists, and anthropologists also have different classifications for these dispositions. Whatever the term used, however, we have for all peoples a basic cultural pattern within which their values fall and which must be appealed to in some way in the creation of every want.

The cultural pattern of every people is also, of course, deeply affected by geographic influences, the kind and importance of contact with others, and various other factors; and custom and tradition are important everywhere. The basic dispositions have provided the framework of the pattern, but other influences also have a good deal to do with the specific wants that have developed in the framework.

It is not important for our purpose to go further into explanation of the cultural pattern, but it is important for us to realize that such patterns exist and that they are bound to be important for the success of economic policies directed toward peoples outside our own culture. For policies within our own culture, where the value systems of the policy-makers and the policy-receivers are essentially the same, the economist may ignore them. In other words, it is important for us to consider the nature of the cultural pattern in international economics, but we do not need to be concerned about it in domestic business-cycle policy, where the persons to be affected, though they differ as individuals, all share essentially the same basic pattern.

The second general principle involved in the establishment of an interest is that there must be some means of calling the attention of persons or groups to the potential new interest.[5] The mere physical availability of a good may serve as such a means: the fact, for example, that it is offered in a market where people can see it; and, of course, if it is prominently displayed and if it has some striking feature that can be played up, the chances for its receiving attention are better. A fundamental purpose of advertising is to call attention to products.

The response to a potential new interest may be favorable or unfavorable, or presumably it may be neutral. The person reacting to a potential new interest usually makes some favorable or unfavorable tieup in his mind between it and something else which has impressed him before. Only when this response is favorable will the potential new interest become an actual interest. Logical considerations of usefulness or welfare may enter also, but a favorable tieup with past or present experience is always necessary.

The favorable tieup in a particular case may be with people or with objects or with both. For example, a person who has not previously wanted an electric refrigerator begins to want one, when the refrigerator has been once called to his attention, because of either or both of two connections which he makes with it. He may immediately relate the refrigerator to the fact that people he knows and would like to copy have similar refrigerators; or he may connect it with the fact that his house is already wired for electricity and that various other similar devices have already pleased him.

This does not overlook the fact that

of the Orient. "Drive" is exactly what the latter is not. "Tendency" is another and vaguer term used to express an idea similar to "disposition."

[5] The nature of this means, which we pass over so summarily here, has had volumes devoted to it in psychology. In the phraseology of certain psychologists, it involves a "cue" from the environment. In any case it is an awareness-creating means which is successful in arousing a response. The nature of the awareness-creating means and the disposition (drives) to which it appeals are a part of the field of behaviorism.

one of the most striking characteristics of our own society is its desire for novelty. Through novelty we express the desire for expanding experience that is a part of the nature of human life itself. But every novelty must be favorably introduced. An amusing example is found in the tremendous recent market demand for the novelty of cowboy pistols and holster belts on the part of children. These could hardly have become a successful novelty, however, if children had not already been admiring cowboys and playing cowboy. Consider, also, the rage for the novelty of miniature golf some years ago and ask how far manufacturers in the United States would have gone with a new recreational device based on cricket. This does not explain, of course, why some novelties with favorable tieups make great hits and others which would seem to have equally favorable tieups do not make hits at all; the only point I am making here is that the favorable tieup must always be present.

The psychological principle involved in this favorable or unfavorable connection is association. The anthropologist also has made good use of it in his concept of "trait complex," for which "trait cluster" would be a better term: the use or application of one trait, or its refinements, in a variety of directions. Indian corn, for example, was a trait around which a good part of Plains Indian culture was built.[6] Because of the principle of association, goods related to something favored, or made to appear so, carry with them much better credentials for adoption than goods not so connected which would appear abstractly to be more useful or logical choices.

Assuming, now, that a favorable interest is awakened for a good and that purchasing power is available to buy it, market choice may take place with nothing more in the picture. But, if this is all, we have only experimental spending and not necessarily a "want" in the sense in which I have defined the term above. All we have is an impulse to get something, and it is not clear at this stage whether or not the new object of interest is going to result in a want, in other words, whether it is going to be a part of the standard of consumption or of living.

The fourth general principle—Gestalt—is the crucial one as to whether or not we have a real want. The answer depends on whether the new object of interest fits or does not fit with other objects of interest which form part of the standard. Has it a function in a pattern? If it does so fit or if, because of its prestige or for some other reason, other things are fitted to it, it becomes a want, and the standard incorporates it. If it does not, it is an easy matter for it to drop out.

It must be clearly understood that the fitting of a good or service into a pattern does not necessarily involve anything "rational" in the usual sense of the term. Whether a thing "fits" or not is a matter of feeling, and reason may or may not be involved in it. Fashion at a particular time may call for a tall silk hat, white gloves, spats, and a frock coat for a diplomatic function; and a man who attends such functions may feel that he must have these articles of clothing—in fact, that any three of them are useless without the fourth. But that does not mean that tall silk hats, white gloves, frock coats, and spats are rational, either separately or collectively.

A striking example that illustrates the foregoing four principles is the case of the introduction of the alarm clock to Mongolian nomads. The clever traders showed their clocks at a market place and wound

[6] C. Wissler, *Man and Culture* (New York, 1923), pp. 121–25.

up clock and alarm, setting the alarm to go off two or three minutes after a crowd was collected. The movement of the hands, the ticking, and the alarm were attention-creating mechanisms; and the people's response was due, in the first instance, to the fact that a religious-mystical cultural disposition was strong in them. These strange round objects appeared to come from the world of magic. Thus we have our first two principles illustrated. But these principles would not be enough to create a favorable reaction to the alarm clocks; on the contrary, the people might equally well have become afraid of them. But the clocks were bright and shiny, and the traders gave a few of them to the chiefs, showing them how they might wind and stop the clocks at will. Thus the people's attraction to the clocks became stronger than their fears; and the clocks, being owned by the chiefs, afforded prestige. Now everybody wanted an alarm clock. So the third principle was expressed. There was nothing, however, in the background of the people to give them a sense of the value of keeping time. The clocks were either not kept wound or, if wound, they ran without any regard to the time of day. Also any hopes that the people had that the clocks might prove efficacious in magic were not realized. Consequently, after a few weeks the people lost interest in alarm clocks, and the next time they moved to a new camping ground the clocks were left behind. They had not become a want; the standard of living had no place for them. Thus is illustrated the fourth principle. It is possible, however, that some scheming shaman might have exploited the alarm clock so that it could have been fitted into an already existing magic pattern, and the people might have been led to believe that the alarm clock could work good or ill if the right rituals and incantations had been performed over it. In this case it would have become a want and a part of the standard of living.

We may now ask what conscious intelligence has to do with economic wants. If conscious intelligence is defined as the effort to choose the most suitable means to accomplish a given end, it may be present and work along with the four principles given, or it may not. Science is the chief formulation of conscious intelligence, and to some extent we direct our lives according to what it tells us, within the range of choice which human experience, under psychological guidance and direction, has so far made available to us. In the absence of science, conscious intelligence is found, of course, in the economic spirit of weighing and measuring all available alternatives for a given end, a process, unfortunately, not so common as economists would like to think.

The fifth principle mentioned (which pertains primarily to the effects rather than to the causes of choice) related to the seriousness of the gap which exists when wants exceed the means to satisfy them; and the opposite condition relates to the gap when the means to satisfy are greater than the standard of living demands and many expenditures are made for impulses which do not become wants. How serious the first situation may be, under some circumstances, has been expounded by psychiatrists and psychoanalysts.[7] I know of no treatment of the second situation, which may be even more serious.

III

Now for an illustration of the principles given above in a situation of major importance, and some applications to policy. For some years my students and I

[7] See, e.g., Karen Horney, *The Neurotic Personality of Our Time* (New York, 1937).

have been conducting field research in Guatemala on changes in wants under the influence of modern technological culture, with special reference to cases and communities where one important influence is the employer of labor. In the course of these studies various types of communities have been visited. The community which presented more problems than the rest will be used for illustration here. It is not, of course, typical of Guatemala; but places similar to it in many respects exist in other countries.

The place in question is the United Fruit Company's headquarters at Tiquisate, near the west coast of Guatemala, a town with labor disturbances and continuous social unrest. It is true that the psychological principles set forth in this paper are not by themselves enough to account for all the difficulties at Tiquisate. Problems connected with social organization, with the history of Guatemala, and with the evolution of political consciousness are in the picture too. But the psychological principles involved in wants are all that will be discussed in this paper.

Tiquisate was built from scratch in the jungle, and at the outset United Fruit had to furnish everything, from the roads to bring the people to the town to the houses they lived in after they arrived. Houses for the native workers were more sanitary, though less private and less attractive, than these people had ever had before. The water supply was wholesome. The company endeavored to control malaria, and it furnished a good hospital and other services.

From an economic point of view the most striking thing about the workers' lives at Tiquisate at the time of the last visit in March, 1950, was that minimum wages were from three to four times as high as minimum wages at other centers of agricultural operations which demanded approximately the same amount of work and furnished similar subsidiary services to the workers. The reasons for this are very interesting, but they are not a part of our present problem. All the workers had been drawn from other localities, and there had not been much time to establish a standard of living peculiar to the community itself. Thus ordinary expenditures were similar to those of people in localities with much lower income, and standards of living in Tiquisate were only a little higher than elsewhere. The rate of expenditures was at least 50 per cent more than the cost of the standard of living. Such conditions, in comparison with those at technological centers in the United States, are unique.

Our first principle is the importance of the cultural pattern. Guatemala has two rather clearly differentiated sets of workers, Indians and Ladinos;[8] the terms are partly racial and partly cultural. The population of the country is variously estimated as from 50 to 75 per cent Indian, and Tiquisate is near centers of Indians; but the Indians at Tiquisate are very few indeed. Indians were simply not attracted into such a situation. They did not want to live under the conditions existing at Tiquisate, and the high wages were not sufficient compensation for the change which their ways of life would have had to undergo.

The cultural pattern of the Ladinos was adversely affected, too, but not so seriously as that of Indians would have been. One of the greatest liabilities to Ladinos at Tiquisate was the lack of

[8] A Ladino, though nominally a man of Latin extraction, may be an Indian who has adopted the customs and manners of Latins in Guatemala; similarly, but very much less frequently, a man of Latin extraction may adopt Indian ways and become an "Indian." Mixed bloods are either Ladinos or Indians but tend to be Ladinos.

privacy for families and the lack of opportunity for the expression of their aesthetic interests, including the growing of plants and flowers around the house. These things the company had ignored because they would not have been of major importance in a community in the United States; but in a Latin community they were very important indeed. The company had built row houses, with a room to each family, and the houses were placed close together. There was almost no land to grow anything close to the house.[9]

The second and third principles are the need of means for calling attention to particular new interests and the necessity that potential new interests should be introduced by favorable tieups between the new and the old. In view of what was possible, there was relatively little of this at Tiquisate. There was a variety of goods in the markets, but a rather haphazard variety: a great many of the things in common use and a few expensive things but comparatively little in price ranks in between. There appeared to be little copying of the higher-paid ranks of employees by the lower because there was little social contact. The higher employees lived inside a high barbed-wire fence, with its entrances guarded, and were referred to by the outside workers as "those inside there" (*allí adentro*). These insiders were simply a different caste and not necessarily an admired one.

Many examples could be given of failure to tie potential new objects of interest into others favored in the past. When the people first moved into the hygienic homes, some of them knocked out the screens, left the covers off the garbage cans, and either did not flush the toilets or did not use them at all. After some years some of the people got used to the new facilities, but the cost was considerable. That a tieup between new housing and old could be successfully made, however, I saw well demonstrated in another town.

There was no way of knowing how much saving would have been done in Tiquisate if there had been a trusted repository for savings. It has been said that the rate of expenditure was at least 50 per cent higher than the standard of living. Where did the money go?

Three main classes of spending absorbed this surplus. Some of it went for experimental spending, for new and untried goods and services that some enterprising merchant happened to bring in. Another share was given away. An interesting question is the relation of such a situation of new affluence to "generosity" to others. Many of these people contributed large sums to the support of friends or relatives either at hand or in other places. The third share was spent for various sensory gratifications in which nothing particularly new was involved. The per capita consumption of alcoholic beverages was very large not only in itself but in relation to consumption in other parts of the country. Prostitution was a flourishing business, quite obvious to the casual observer. The workers at Tiquisate condemned drunkenness and prostitution, but some of

[9] We asked the 26 children in the sixth grade at Tiquisate to write essays on "My Home: What I Like about It; What I Do Not Like; My Ambitions for My Home in the Future." Later we asked 26 children in the corresponding grade in Ames, Iowa, to write essays on the same subject. The results were as follows:

Children Mentioning Importance of	Tiquisate	Ames, Iowa
Flowers and plants	17	7
Love and peace in home and with neighbors	23	13
Space	18	3
Material facilities and equipment	0	22

them also shrugged their shoulders and asked what else there was to do.

Our fourth principle of want development is that, for a new interest to become a part of the standard of consumption or of living, it has to fit with goods and services or with values already present or introduced to go with it. Some of the experimental spending at Tiquisate was having that effect. Radios and watches, for example, will probably be a part of the standard of consumption before long. But the standard is rising more slowly than necessary, and it is also rising at unnecessary cost.

The most striking characteristic of Tiquisate as a community was the presence of social unrest and intergroup tensions. There was much irregularity in sexual relations, not limited to connections with prostitutes and also not limited to adult men and women; considerable family desertion; and practically no community spirit. The causes of all this are complex, but it is reasonable to ask if a part of the cause is not to be found in the contrast between scales of consumption and standards of living, in the disorganized spending, and in spending for sensory gratifications, which takes up a considerable part of this gap.

IV

Let us return now to the problem which I stated at the outset. Of all the practical applications of the principles involved in want development, the clearest is in relation to what may happen to the people of another culture when large-scale technological developments take place. At Tiquisate the disturbances and tensions had reached such a pass that their effects, together with other influences in the country, favored the arguments of Communists, who promised the people a more satisfactory world. The unions were continually asking for more money, which in itself was no solution: with every increase of wages and privileges, new problems were created. The underlying problem of use of resources went unsolved, in part at least because the complexity of the want-creating process was not understood.

With regard to domestic problems, including national income and business-cycle policy, the implications are not so specific. Obviously, however, some of the confusion that exists in economics regarding the relation of savings to spending as purchasing power changes is due to the failure to distinguish between impulses and wants and to confusing past spending with past standards of living. The principles suggest that we had better look a little more carefully into the liabilities of prosperity as contrasted with those of depression. It may very well be that the deepest roots of cyclical trouble lie in the fact that, in times of rapidly rising income, consumption gets too far ahead of standards of living and that we have unpredictable, haphazard, and disorganized spending which has the effect, conscious or unconscious, of confusing producers as to what consumers will buy or as to whether they will buy at all.[10]

Most important are the relations of psychological-anthropological principles to a general theory of choice. The applications of this include the above and more. They become increasingly vital as we approach more closely the possibili-

[10] The Twentieth Century Fund study by F. J. Dewhirst and associates, *America's Needs and Resources* (New York, 1947), in Appendix 6 gives an estimate of about 175 different consumer expenditures in selected years from 1909 to 1942. Taking into account changes in national income and in purchasing power, the fluctuations in amounts spent for such goods and services as racing, gambling, and liquor are enormous. Changes are slow and small for goods and services which depend on the cultivation of taste.

ties of what we call an "economy of abundance." Can our capacity for want expansion keep up with the physical potentialities of production of the world's economy without any more attention to the processes of want development than we have paid in the past? The answer is "No." What studies are most useful? They must involve more co-operation among the social sciences than we have had in the past. In the working-out of their theoretical models, economists may assume the psychological reactions of peoples, but these reactions cannot be assumed in the field. Studies in other countries are particularly valuable in casting light on these questions because, by them more than by domestic studies, universal principles are dramatized and thrown into bold relief. One case study which demonstrates principles may reveal far more than many generalizations untested in the field.

The United Fruit Company's willingness to have the case of Tiquisate brought into the light is a good omen for more co-operation between business and social scientists and for social scientists among themselves. Steps to effect a better co-operation are now, in fact, already under way. It is only business and government that have the opportunity, after production is increased, to apply on a large scale the principles for expanding consumption and raising standards of living. But it is only social scientists who can provide the information required in the determination and application of the principles, which not only involve economics but go to the roots of human nature.

COMMODITY-RESERVE CURRENCY

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CURRENCY arrangements have frequently been in a state of confusion and change, but seldom to so great an extent as in the period since the end of World War II. On the one hand, the Western nations have agreed, through the International Monetary Fund, to erect an international currency by maintaining essentially rigid exchange rates between national currencies; on the other hand, they have refused to make their national currencies fully convertible into some common medium such as gold at fixed rates and on demand. They have insisted on maintaining a considerable amount of freedom in national monetary policy. The resulting system of currency standards—if, indeed, it can be called a "system"—has provided neither the favorable environment for international trade offered by a truly international currency nor the freedom from external monetary disturbances of truly national currencies. It has rather combined the worst features of the two standards—the rigidity of an international standard and the caprice and uncertainty of national standards. The absence of satisfactory currency standards has been an important—indeed, in my view, the most important—obstacle to the elimination of direct controls over international trade and to the growth of multilateral trade, free from government control and intervention.

The alternatives available include, at the one extreme, restoration of a "real" gold standard; at the other, national fiat currencies linked by flexible exchange rates freely determined in private markets. The first extreme has been widely regarded as "outmoded"; yet, paradoxically, the prestige of gold has seldom, if ever, been as high as it is currently, despite—or, perhaps, because of—the almost complete disappearance of free convertibility of currencies into gold. The second extreme runs directly counter to the agreements under the International Monetary Fund and, far more important, bears the odium of repeated experiences of currency depreciation under fiat standards. These circumstances help explain both the existing hybrid standards and the attention that has been devoted to attempts to construct satisfactory currency arrangements that would avoid both extremes.

One such arrangement that has received significant intellectual support is the commodity-reserve monetary standard proposed and championed by Benjamin Graham and by Frank D. Graham.[1]

[1] See Benjamin Graham, *Storage and Stability* (New York: McGraw-Hill Book Co., 1937), and *World Commodities and World Currency* (New York: McGraw-Hill Book Co., 1944); Frank D. Graham, *Social Goals and Economic Institutions* (Princeton, N.J.: Princeton University Press, 1942), pp. 94–119.

It should be noted that the two Grahams espoused the proposal for somethat different reasons. To Benjamin Graham the monetary aspects of commodity reserves were secondary; his primary interest was in its contribution to the "problem of raw materials" and of "burdensome surpluses," whatever they may be. To Frank Graham the monetary aspects were primary.

A recent study by the Stanford Food Research Institute examines Benjamin Graham's proposal in great detail and contains two chapters by Edward S.

This standard is a member of the same broad species of monetary systems as the gold standard (Sec. I) but has characteristics of its own that deserve special attention (Sec. II). It is doubtful, however, that these characteristics make it preferable either to the gold standard or to the particular fiat standard with which it is compared in Section III below.

I. COMMODITY STANDARDS IN GENERAL

The central feature of a commodity standard is that the medium of exchange consists either of a commodity (or group of commodities) in physical form—full-bodied "coins"—or of titles to designated physical quantities of a commodity (or group of commodities). The standard may be said to be a *strict commodity standard* if either no titles are used or any that are used are literal warehouse certificates for the designated quantities of the monetary commodity. It is a *partial commodity standard* if titles are used that are not literal warehouse certificates. In general, such titles take the form of claims to the monetary commodity issued by public or private institutions that attempt to insure redemption by holding "reserve" stocks of the monetary commodity smaller in amount than the total of outstanding claims.

Monetary history records a bewildering variety of commodities that have served as mediums of exchange—from the wampum beads used by American Indians to the cigarettes and cognac used in Germany after World War II. At the same time, strict commodity standards have been rare in modern times; the major part of the circulating medium typically has been evidences of debt, generally in the form of claims to nonexistent stocks of the monetary commodity or commodities.

a) STRICT COMMODITY STANDARDS

Under a strict commodity standard the supply of currency and the prices of other goods in terms of the currency commodity are determined entirely in the market by the demand for the commodity for monetary and other uses and by the supply of the commodity, which is ultimately governed by costs of production. Government action is not required, though government may provide the service of certifying the quality and quantity of the currency commodity or of issuing or certifying warehouse receipts, or may designate the commodity or commodities to be used as currency. Indeed, strict commodity currencies have sometimes arisen because of the collapse of the official currency (e.g., German postwar cigarette currency).

In equilibrium, the cost of producing a unit of the currency commodity is equal at the margin to a unit of the commodity. This equilibrium will be disturbed by anything that changes the cost (in terms of the currency commodity) of producing the currency commodity. For our purposes, such changes can be divided into those that arise from changes in technological conditions of production and all others.

Changes in technological conditions of production will tend to produce per-

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Shaw on the method of financing commodity purchases (M. K. Bennett and associates, *International Commodity Stockpiling as an Economic Stabilizer* [Stanford, Calif.: Stanford University Press, 1949]). However, Bennett and his associates restrict themselves entirely to the stock-piling aspects of the proposal. They view it as simply added to existing monetary arrangements and explicitly eschew analysis of the proposal as a basic monetary reform. The present paper, on the other hand, is devoted almost entirely to the latter aspect of the proposal. In consequence, although initially written without knowledge of or reference to the Stanford study, the present paper turned out neither to duplicate nor to conflict with it but rather to be entirely complementary.

manent changes in the price level of final products if they change the cost of producing the currency commodity relative to the cost of producing other commodities. For example, if discovery or invention makes the production of the currency commodity relatively cheap, its cost of production will fall below its price, output will be stimulated, and the supply of the currency will tend to increase at a greater rate than that required to keep prices stable. Equilibrium will be restored when the increased supply of currency has raised the prices of other commodities, and hence the cost of production of the currency commodity, sufficiently to reduce the output of the currency commodity to its normal level. Technological change will leave the equilibrium price level of final products unchanged only if it affects the cost of production of the currency and of other commodities alike and so does not affect their relative cost. For example, if the costs of both groups of commodities decline, prices of other commodities will initially decline; and the output of the currency commodity will expand to a level above normal. Equilibrium will be restored when the increase in the supply of currency has brought prices back to their original level.

Changes in the cost of producing the currency commodity that arise from changes in prices in response to shifts in demand, the velocity of circulation of money, and the like set in motion corrective, countercyclical forces. A rise in the prices of other goods increases the cost of producing the currency commodity and so tends to reduce the current rate of production; it also makes the currency commodity relatively cheap for nonmonetary uses and thus tends to reduce the fraction of the existing stock used for monetary purposes. Both effects tend to halt and reverse the rise in prices. Similarly, a fall in the prices of other goods tends to increase the current rate of production of the currency commodity and to increase the fraction of the existing stock used for monetary purposes, and both effects tend to halt or reverse the fall in prices.[2]

Because current output of the currency commodity is generally a small fraction of the existing stock, deviations from equilibrium can be substantial; and a relatively long time may be required to correct them. Considerable movements in the price level can thus take place even in the absence of any changes in technological conditions. The equilibrating forces will clearly be stronger, the higher the short-run elasticity of supply of the currency commodity and the greater the sensitivity of expenditures to changes in the quantity of currency.

The offsetting or countercyclical effects of a strict commodity currency are of two kinds: direct effects on the income stream and indirect effects through the monetary stock. A decline in other prices not originating from changes in technological conditions will mean or reflect a reduced flow of income. The hiring of resources to produce the currency commodity means a direct addition to the income stream, offsetting in some measure the initial reduction. Conversely, a rise in other prices means an increased flow of income, which is directly offset in some measure by reduced payments to factors of production in the industry producing the currency commodity. In-

[2] The statements in this and the preceding paragraph are exact only if the industry producing the currency commodity is a (long-run) constant-cost industry. Otherwise, changes in demand would tend also to change the price level by changing the location of the "margin." These complications would not alter the substance of the argument and so are omitted.

direct effects flow from the changes in the monetary stock produced by changes in both the fraction of the existing stock used for monetary purposes and the current rate of production. Expenditures are doubtless related to the stock of currency, if only because the currency is regarded as part of the real wealth of the community. A rise in the stock of the currency commodity will stimulate expenditures and so indirectly add to the flow of income, and vice versa.

Under a strict commodity currency, the government obviously cannot finance any expenditures by currency creation. It must balance its budget continuously or else finance any deficit with funds borrowed in the market or taken from previously accumulated hoards of currency and use any surpluses to repay debt or to accumulate hoards of currency. Similarly, the only monetary policy available to the government is the sale of securities for currency and the use of accumulated hoards of currency to buy securities. Such sales or purchases might have considerable effects over short periods. In so far as they did, they would tend to alter prices and thereby induce expansion or contraction in the production of the currency commodity, so that their major effect in the long run would be on the supply of the currency commodity. The freedom of the government would be still further limited if more than one political unit adopted the same commodity or commodities as the standard. The relevant economic unit is then the group of countries, and the above analysis applies to that economic unit as a whole. Exchange rates between countries or, for that matter, within countries can fluctuate within limits determined by the cost of transporting the medium of circulation; wider movements are impossible so long as the countries remain on the identical standard.

In the older literature, discussion of the relative merits of alternative currency commodities largely emphasized the physical characteristics required of a literal medium of circulation—in Horace White's words, "The requisites of a good kind of money are portability, homogeneity, durability, divisibility, cognizability, and stability of value."[3] Today, in judging a monetary standard, we pay little attention to any but the last of these features; we pay primary attention to broader economic consequences—probable movements in the level of prices, the implications of the standard for cyclical behavior, and the like. From this point of view, all strict commodity standards have common virtues and common vices. Perhaps their most important virtue is automaticity and impersonality: they require no forecasting and no administrative or legislative policy decisions. They automatically tend to operate countercyclically—to add to income when it is relatively low and to subtract from income when it is relatively high. The existence of physical costs of production sets limits to the quantity of currency, and so runaway inflation is impossible so long as a commodity standard is adhered to.

The vices of strict commodity standards are the other side of their virtues. Being automatic, they may not provide sufficient flexibility or adaptability to prevent substantial swings in prices or in income. The physical cost of production of currency does not make either moderate inflation or substantial deflation impossible; it means that price movements may be produced by technological changes in the relative cost of production of the currency commodity and that some resources are devoted to the creation of money. This last is doubtless the

[3] Horace White, *Money and Banking* (3d ed.; Ginn & Co., 1908), p.15.

major reason why strict commodity standards have tended to disappear. The prospect of saving the resources they require is no mean incentive for the invention of less costly methods of providing a circulating medium. For example, it would have required about a 3 per cent per year addition to the circulating medium of the United States over the last fifty years or so to have kept prices stable if the velocity of circulation had remained unchanged. In fact, the velocity of circulation has apparently been declining at the rate of something over 1 per cent per year, which would mean that something over a 4 per cent per year addition to the circulating medium would have been required for stable prices.[4] The circulating medium proper (currency plus demand deposits) is currently about half the national income. It follows that, even if we neglect changes in velocity, something like 1½ per cent of the national income would have had to be devoted to the production of the currency commodities in order for prices to have remained stable under a strict commodity standard. Note that this figure is the same regardless of the commodity or commodities used as the monetary standard. The limitation that a strict commodity standard imposes on national monetary or economic policies is a feature that some will regard as an advantage, others as a disadvantage.

b) ALTERNATIVE STRICT COMMODITY STANDARDS

The relative desirability of different commodities or groups of commodities as currency standards depends in part on the price-level behavior accepted as desirable and in part on the relative importance attached to the various countercyclical reactions under a strict commodity currency.

If a stable price level of final products is taken as the objective—as, for convenience, we shall assume—a desirable commodity or group of commodities would be one that was affected by technological change to the same extent as other commodities, so that it was immune from any technologically induced changes in relative costs of production. Even so, technological or other changes in underlying conditions affecting the demand for, or supply of, the monetary commodity could produce substantial transitional departures from the equilibrium price level unless the monetary supply of the currency commodity or commodities were highly elastic, because of either a large nonmonetary supply that shifted readily into monetary uses or an elastic supply schedule of current output.

The effectiveness of the standard in countering cyclical movements in income depends on the importance of the various countercyclical effects automatically produced by such changes in the level of income. If changes in the fraction of total assets in the form of money have alone a powerful effect on expenditures, then a standard will be highly stabilizing so long as there is a large stock that will readily shift into or out of monetary channels in response to small changes in the prices of other commodities; a highly elastic supply schedule of current output is unnecessary. If changes in the fraction of total assets in the form of money do not have a powerful effect on expenditures but changes in the total volume of assets do, then a large shiftable stock is of little value, and a highly elastic supply schedule of current output is required. Finally, if asset changes are not very powerful, the stabilizing effect of the standard will have to come primarily

[4] See Clark Warburton, "The Secular Trend in Monetary Velocity," *Quarterly Journal of Economics*, LXIII (February, 1949), 68–91.

through its direct contribution to the income stream. This will require that the supply schedule of current output be highly elastic and that the industries producing the currency commodities account for a sizable fraction of the economy's output, so that the volume of resources employed in producing the currency commodities and the corresponding flow of income payments can vary substantially. Over the past few decades increasing importance has been assigned in economic theory—whether rightly or wrongly—to the direct income effect relative to the effect of changes in total assets, and to the effect of changes in the total volume of assets relative to the effect of changes in the composition of assets. In consequence, economists would currently stress the need for a highly elastic current supply produced by sizable industries.

In terms of these criteria, gold and silver—the commodities most widely used as currency—do not rank very well. The discovery of new mines and the special impact of technological change have caused their relative cost of production to shift frequently and sometimes quite drastically. The elasticity of their current supply, while not negligible, is not substantial, at any rate in the short run and over a wide range. A substantial fraction of the output of the industries producing them is devoted to monetary uses, so these industries account for only a small fraction of the economy's total output. They rank reasonably well only in terms of the size of the stock that shifts fairly readily between monetary and nonmonetary uses. They achieved their dominant position primarily, one suspects, because of their more homely virtues—"portability, homogeneity, durability, divisibility, and cognizability." In terms of broader economic criteria they will appear reasonably satisfactory only to one who stresses very highly the effect on expenditures of the fraction of total assets held in the form of money. Their chief recommendation, beyond this, is the symbolism that has been attached to them, which has made it possible for them to afford a real bulwark against government "tinkering."

By contrast, the late Charles O. Hardy always cited common building bricks as perhaps the best available single monetary commodity. The absence of the homely virtues required for the physical use of bricks as a medium of circulation could be remedied by the use of warehouse certificates, which possess these virtues in high measure. Bricks possess the minor virtues required of a commodity to be used as a currency—they can be reasonably well defined and checked for quality, they can be stored, etc. And they have the major virtue of an exceedingly elastic supply. They can be made practically everywhere—Hardy claimed that bricks are made in each of the over three thousand counties in the United States—and require little capital investment or specialized skill. In consequence, the rate of output can be stepped up or down rapidly. There is a large stock—some, indeed, incorporated in buildings—that could be shifted readily from nonmonetary to monetary use and conversely. It follows that, under a brick standard, any decline in the prices of other goods that would tend to make it profitable to produce bricks for monetary use would have a rapid, widespread, and substantial effect on the rate of output and employment in the brick industry. This would provide a powerful offset to any decline in income. Any tendency for prices to rise would similarly tend to be offset by a prompt decline in the rate of output and employment in the brick

industry. There is real merit in Hardy's contention that the chief defect of the brick standard is simply the impossibility of getting anyone to think seriously of bricks as money.

Impressed with the deficiencies of gold or silver separately, a number of economists, including Marshall, proposed toward the end of the nineteenth century that the two be wedded in what was called "symmetallism."[5] Under this proposal the currency unit would have been a specified weight of silver plus a specified weight of gold—one can, if one wishes, think of a physical combination of the two in a single bar. The price of silver relative to gold could vary to any extent at all; the price of a particular combination of the two not at all.[6] The broadening of the monetary base achieved under symmetallism would tend to lessen the influence of inventions or discoveries affecting one metal alone and thus would give a less variable price level.

In principle, the ultimate extension of the idea of symmetallism is to include in the standard every commodity and service produced in the economy roughly in proportion to the amounts produced (presumably as measured by "value-added" in their production). This could not be done physically because of problems of storage; but if for a moment we suppose it could, the unit would be a market basket of commodities and services representing in microcosm the total national basket and would provide an almost ideal commodity-currency standard. Since the price of this same market basket would be the price index, stability of the price index would be immediately and perfectly attained—though, given the general index number problem, perhaps not stability of the "price level." Technological change could not, at least initially, affect the currency unit differently from aggregate output. The elasticity of current supply of currency would, again at least initially, be essentially infinite in response to any putative change in money income, since any proportionate reduction in output for nonmonetary uses would be in the form required for addition to the money stock, so that the major impact of any change would be on the destination of production rather than its amount or composition. But, even at this obviously impossible extreme, there are difficulties suggested by the phrase "at least initially." The composition of total output would change over time. A currency unit fixed in composition would no longer appropriately represent total output; the fraction of the output devoted to monetary use would vary from commodity to commodity so that technological change could have differential effects on the currency unit; and the elasticity of current supply would be reduced. In view of the small fraction of the current output of each product that would have to be devoted to monetary use, none of these effects would be serious until a very considerable period had elapsed. What they illustrate is simply the impossibility of a complete solution of the index-number problem.

I have cited this extreme primarily because it is the ideal that animates the

[5] See Alfred Marshall, "Remedies for Fluctuations of General Prices" (1887), reprinted in *Memorials of Alfred Marshall*, ed. A. C. Pigou (London: Macmillan & Co., Ltd., 1925), pp. 188–211, esp. pp. 204–6. It should be noted that Marshall recommended symmetallism only as superior to either gold or silver alone or to bimetallism; he did not think it much superior to them and preferred other devices, like the tabular standard, to any commodity standard.

[6] This scheme should be sharply distinguished from bimetallism—the use as a currency unit of a specified weight of silver *or* a specified weight of gold.

commodity-reserve scheme and gives it its real appeal. The commodity-reserve scheme is essentially an attempt to go as far in the direction of this ideal as the hard facts of life will permit. Its value and adequacy in large measure hinge on how far in this direction it is possible to go.

c) PARTIAL COMMODITY STANDARDS

As we have seen, in a world in which total output is growing in response to technological and other changes and in which the velocity of circulation is fairly constant, a strict commodity standard requires the regular use of a considerable volume of resources for additions to the monetary stock in order to keep prices stable. To use the example given above, something like 1½ per cent of the resources of the United States would have had to be devoted to the production of currency commodities for monetary use.

It is not surprising, therefore, that the countries of the Western World have not used strict commodity standards. Nominal gold or silver standards have contained a large admixture of fiat elements.[7] In the main, gold (or other currency commodity) has been "economized" through the use of fractional reserves for mediums of circulation in the form of hand-to-hand currency and, even more widely, in the form of demand deposits. That is, convention or law has permitted the issuance of claims to an amount of gold a more or less definite number of times the amount actually available for monetary use. More rarely, notably in the English Banking Act of 1844, gold has been "economized" by providing for a fixed fiduciary issue and requiring that all nominal claims to the currency commodity in excess of that issue be literal warehouse certificates. The conditions under which either of these procedures will in any relevant sense "economize" gold and the senses in which this phrase can be interpreted are subjects that have not yet been adequately explored or analyzed; but we shall pass these fascinating questions by and, instead, examine the consequences of the use of a partial commodity currency.[8]

[7] I shall use the term "fiat" to refer both to inconvertible government-issued currency (to which alone the dictionary restricts the term) and to other types of currency that have one essential feature in common with the former, namely, that they are evidences of debt rather than of the existence of specified physical amounts of the currency commodity. In this sense we may regard the "fiat" element in a partial commodity currency as the difference between the total amount of currency outstanding and the monetary value of the reserve stocks of the currency commodity.

[8] The naïve notion that there is an immediate and direct "economy" in the use of gold achieved by making gold only a fraction of the total circulating medium is obviously wrong. Assume a fixed initial amount of gold in the monetary stock of a closed economy. Then the only effect of a smaller fractional reserve is a larger quantity of money and a higher price level. Next, suppose the total volume of money must rise by, say, 3 per cent per year to keep prices stable; then, whatever the fractional reserve, so long as the fraction does not change, the gold stock, too, must rise by 3 per cent a year to keep prices steady. Hence, if the initial monetary gold stock were the same, there would be no direct economy here, either, if enough gold were added to keep prices constant. But this needs to be complicated to take account of the forces determining the output of gold. Assume a 100 per cent gold currency in equilibrium in the sense that the annual output of gold is just sufficient to provide for the annual increase in the monetary stock needed to maintain stable prices—say, 3 per cent per year. Let the reserve ratio be changed to 50 per cent. If we temporarily suppose no shifts in the monetary stock of gold to nonmonetary uses, the nominal quantity of money would double, and we may suppose prices to double too. This will decrease the production of gold. The annual output of gold will therefore be less than 3 per cent of the stock; hence gold will be "economized" in the sense that fewer resources will be devoted to its production, but at the expense of instituting a decline in prices. As prices decline, gold production is encouraged, and a new equilibrium will emerge. How gold production in the new position compares with initial gold production depends on the long-run supply conditions in the gold

The introduction of fiat elements into the monetary stock immediately raises the question, Who is to create the fiat currency and control its issuance? Fiat currency is practically costless, whereas commodity currency is not. Under competition there will be a tendency for each kind to be produced up to the point at which its value equals its costs. This sets definite limits to the quantity of a commodity currency; it means indefinite increase in the quantity of a fiat currency and indefinite decrease in its value; there is no stable competitive equilibrium except when the fiat currency declines so much in value that it becomes a commodity currency—the commodity being the paper and services used in producing the currency. Competition is therefore inappropriate for determining the amount of a fiat currency. The production of fiat currency is, as it were, a natural monopoly, which explains why a measure of control has typically been exercised by government, why the privilege of issuing currency has been fought for so vigorously, and why proponents of a private competitive order, like Henry Simons, have held the view—which I share—that the creation of fiat currency should be a government monopoly. This problem of control is seen clearly and faced openly when the fiat element is introduced through a fiduciary issue—as in Peel's Act of 1844. It is less obvious under a fractional reserve system when the fiat elements are produced continuously, in conjunction with changes in the currency commodity, and as part of other activities.

Almost uniformly the provision of the fiat element in the monetary system has been taken over by "banks" as an indistinguishable part of their lending and investing activities. Such a connection is clearly not inevitable. Under a strict commodity currency, there could and would still be lending and borrowing. At the same time, it is no accident that financial institutions have provided at least part of the circulating medium of all advanced countries in the course of performing what they regarded as their primary function of serving as an intermediary between lenders and borrowers. Lenders differ in the kind of security or claim they prefer. Some will wish to keep part or all of their assets in a form immediately available for emergencies and subject to little or no risk of (nominal) capital loss. Borrowers seldom wish to provide securities or claims of this form; they typically require some assurance that repayment will not be demanded before a specified time. Accordingly, there is room for profit for an institution that will borrow on demand and lend on time. It can successfully borrow on demand, however, only if it can convince a class of lenders that it will be able to meet their demands when they occur. If it succeeds in so convincing a fairly large class of lenders, the institution, as an indirect consequence of seeking to meet the desires of lenders, will have created an evidence of debt that is almost ideally suited to serve as a medium of circulation. In the absence of any equally satisfactory alternative or of direct statutory prohibition, it is almost inevitable that the next step will be taken and that the financial institution will seek to make

industry. For example, if the supply curve were horizontal, the ultimate equilibrium would involve the production of half as much gold as the initial equilibrium. Further complications arise from shifts in the stock of gold between monetary and nonmonetary uses, as well as from the introduction of a number of national units and the possibility of different fractional reserves in different countries. As even this superficial analysis suggests, the most efficient "economizing" technique is the one that was actually used historically, namely, a steady decline in the fraction of reserves required.

the claims it offers to lenders even more attractive by facilitating their use as a medium of circulation.

The tendency for part of the circulating medium to be created as an incident of the lending and investing activities of "banks" has meant government intervention into these activities in the course of attempts to control the circulating medium. Thus it has meant extension of government control to activities that could appropriately be left to competition if they were not intertwined with the creation of currency.

The introduction of fiat elements into the monetary system, especially through the medium of private financial institutions, almost necessarily means the existence of different kinds of circulating media. This raises a problem of maintaining interconvertibility. The chief device that has been used for this purpose is the attempted provision of two-way convertibility of all other types of currency into the commodity that is ostensibly the currency standard. Thus, under the nineteenth- and early twentieth-century gold standard, the government or one of its agencies offered to buy or sell gold in unlimited amounts at a fixed price in terms of a particular category of currency (usually warehouse certificates or government fiat money), and financial institutions issuing circulating mediums were required to make them convertible into either gold itself or that category of currency. Under this system the potential volume of claims to the currency commodity so created was many times the physical volume available for meeting the claims. As Bagehot pointed out so well, maintenance of the system requires some agency that will not act in its immediate private interest but will maintain an emergency "reserve." This must be the government or an agent of the government, and it must inevitably exercise control over the institutions that create currency.

The existence of several types of currency under a fractional reserve system, together with the maintenance of convertibility into the currency commodity, necessarily spells "inherent instability" in the total volume of currency: a change in the *form* in which the public wishes to keep its currency tends to change the total volume of currency. The reason is that a unit of the currency commodity in "reserve" tends to "support" several units of circulating medium; the same unit in circulation, only a single unit of circulating medium. Put differently, for the type of currency consisting of the physical currency commodity itself or a literal warehouse certificate a 100 per cent reserve is required; for other currency, only a fractional reserve; and typically there have been several classes of currency with different fractional reserve requirements. An attempted shift among any of these classes obviously changes the total volume of circulating medium that can be outstanding, given the total available volume of the currency commodity. Such shifts will certainly take place. When they do, the monetary system is itself converted into a source of instability.

One way to eliminate this inherent instability is to prohibit the use of the currency commodity as a circulating medium, restrict its use to reserves, and make the reserve requirements uniform for all types of currency. The first two steps were taken with gold in the United States after 1933, though without elimination of inherent instability because of failure to take the third step.[9] Essen-

[9] United States action still left different kinds of circulating mediums with different reserve requirements (in particular, Federal Reserve notes and demand deposits in commercial banks). This was unnecessary. It would have been far better if the

tially, this action involved the abandonment of even a partial commodity currency and the substitution of a strictly fiat currency, along with a buying program for a particular commodity and some fairly loose rules connecting the total amount of fiat currency with the amount of that commodity in storage.

Partial commodity standards thus lead to two major evils: government intervention into lending and investing activities that can appropriately be left to the market and inherent instability in the monetary system. These evils can be eliminated by acceptance of either of two extreme monetary standards: (1) a circulating medium composed entirely of the physical currency commodity or literal warehouse certificates—i.e., a strict commodity currency; or (2) a circulating medium composed entirely of a single kind, or essentially equivalent kinds, of fiat currency. This would eliminate both evils only if the government monopolized the creation of the fiat currency. If the government did not do so but allowed private banks to create the currency under strict rules that kept the circulating medium uniform, the evil of inherent instability would be eliminated but not the evil of government intervention into lending and investing activities.

Under either a strict commodity standard or a strict fiat standard, the elimination of the twin evils involves essentially the separation of the depositary and check-clearance function of existing banks from their lending and investing activities—i.e., what has come to be known as the "100 per cent reserve proposal." This is the only proposal that would permit the lending and investing activities of banks to be left free from government control; and, though it is not the only way to eliminate the inherent instability of the monetary system, it is a satisfactory way. And, it may be added, the most attractive alternative way to eliminate inherent instability—allowing banks to issue both hand-to-hand currency and deposits under the same fractional reserve requirements—has little or no support among economists, bankers, or the public.

Like a strict commodity standard, a partial commodity standard limits the freedom of government with respect to economic and monetary policy. The government can finance some of its expenditures by currency creation and has some measure of freedom with respect to economic and monetary policy, especially if reserves of the currency commodity are fairly large. Ultimately, however, its freedom is limited by the necessity of maintaining convertibility into the commodity used as the currency standard. The range of freedom will be smaller if the same standard prevails in several countries than if it prevails in one country alone, and it may be negligible if the country in question has a small fraction of the economic resources of the currency area and engages in extensive international trade.

II. COMMODITY-RESERVE STANDARD[10]

a) GENERAL CHARACTERISTICS

As already noted, the proposal for a commodity-reserve currency is an at-

ultimate reserve requirements had been made uniform.

[10] See W. T. M. Beale, Jr., M. T. Kennedy, and W. J. Winn, "Commodity Reserve Currency: A Critique," *Journal of Political Economy*, August, 1942, pp. 578–94, for a careful, critical examination of the proposal. This article is reprinted in B. Graham, *World Commodities*, pp. 151–63, along with his answer to it in the *Journal of Political Economy*, February, 1943, pp. 66–69; F. D. Graham also wrote an answer in *Journal of Political Economy*, February, 1943. See also Lloyd W. Mints, *Monetary Policy for a Competitive Society* (New York: McGraw-Hill Book Co., 1950), pp. 159–67; Bennett and associates, *op. cit.*

tempt to carry the principle of symmetallism as far as is feasible. The basic currency unit would be a market basket of commodities: so many units of commodity X, so many units of commodity Y, etc. To put it differently, the monetary authorities would offer to buy and sell unlimited quantities of a specified bundle of commodities (or perhaps literal warehouse receipts for the specified quantities of the commodities) at fixed prices in terms of nominal currency units—say, to buy the specified bundle at $95,000 and sell at $105,000, the difference representing a seignorage charge. While the total price of the commodity bundle would in this way be held within narrow limits, the prices of individual items in the bundle would be free to vary, and, with any large number of items in the bundle, to vary enormously. Any one item or group of items could rise or fall in price so long as other items fell or rose.

The necessity of accumulating bundles of commodities in specified proportions —or bundles of warehouse receipts— would raise no special problem so long as the commodities were openly traded in fairly broadly based markets. Under such circumstances specialists would develop who would act as arbitragers, putting together bundles for sale to the monetary authorities when the total market value of the bundle fell below the official buying price and buying bundles from the monetary authority when the total market value of the bundle rose above the official selling price.

In order to keep the coverage of the commodity bundle as broad and representative as possible, it would probably be desirable to provide for periodic revisions. Since it would be hard to introduce any rigid principle for such revisions, the necessity for them would detract from the automaticity of the scheme and its freedom from political interference. In addition, the adjustments required in reserve stocks to bring their composition in line with the revised commodity bundle might at times involve substantial disturbances in particular markets.

Commodity-reserve currency can be assigned different roles in the currency system as a whole; and any judgment of its merits hinges critically on the role it is assigned. At one extreme, commodity-reserve currency could simply be added to existing monetary systems. It would then be primarily a device for supporting the average price of a group of commodities and for providing the equivalent of deficits and surpluses in the government budget at different stages of the business cycle. Any discussion of its operation would have to take account of the character of the associated monetary structure and of the monetary policy of the government in question. In this form the commodity-reserve scheme is better analyzed as a particular countercyclical gadget or as a device for providing government assistance to a particular group of producers than as a basic monetary reform. Therefore, we shall omit any further discussion of it.[11]

An intermediate possibility is the substitution of commodity-reserve currency for what has sometimes been called "high-powered" money—the kinds of currency eligible for use as reserves behind the circulating medium. In the United States this would mean its substitution for Federal Reserve notes and deposits and Treasury currency or perhaps for gold and Treasury currency

[11] It should be noted that this is the role envisaged and favored by Benjamin Graham, which explains why the bulk of his writings on commodity reserves is irrelevant for our present purpose. It is also the role examined in detail by Bennett and associates, *op. cit.*

alone, or, more generally, for the fiat currency issued by the central bank or government or the commodity reserves ostensibly backing them. This would mean a partial commodity standard and, presumably, the retention of existing fractional reserve banking. It follows from our earlier analysis that it could cure neither widespread government intervention into and control over lending and investing activity nor the inherent instability of the monetary system. To get some idea of the quantities involved, it may be noted that "high-powered" money in the United States is currently between one-third and one-half of total currency and demand deposits, or between one-sixth and one-quarter of the annual national income.

At the other extreme, commodity-reserve currency could be adopted as a strict commodity standard. In this form, commodity-reserve currency would replace all existing currency (including demand deposits). It would be combined with 100 per cent reserve banking so that the twin evils of government intervention into lending and investing activity and of inherent instability would simultaneously be eliminated. This is the most radical use of the scheme and would involve the most fundamental reconstruction of the monetary system.[12]

Whether commodity-reserve currency is designed to replace present reserve currency, or all existing currency, its introduction would be complicated by the presence of currency in the system of the kind it is desired to replace. It is undesirable to wipe out the existing currency and start afresh; yet, if the commodity-reserve system had been in effect all along, this currency would have been matched by stocks of the commodity-reserve bundles. The obvious solution is the principle of Peel's Act—a fixed fiduciary issue equal in amount to the initial amount of currency in the system of the kind it is desired to replace. If, to begin with, the commodity-reserve bundle were slightly overpriced, a reserve would quickly be accumulated and, in a growing economy, would continue to accumulate.

[12] Frank D. Graham would apparently have preferred this use of the plan, though he supported its less extensive use as preferable to its abandonment (see *Social Goals and Economic Institutions*).

b) COMPOSITION OF THE CURRENCY BUNDLE

To qualify for inclusion in the bundle, commodities would have to admit of precise price quotation—which means that they must be capable of accurate specification and standardization. It would be highly desirable, if not essential, that they be traded in fairly broad markets, so that trading in the commodity bundles could be carried on readily and inexpensively. They should be supplied under reasonably competitive conditions, since otherwise any downward pressure on the price of the bundle could be absorbed by rises in the prices of the monopolized items instead of by sales to the monetary agency from increased output. They would obviously have to be storable in both a physical and an economic sense; that is, it would have to be possible to preserve relatively inexpensively not only their physical characteristics but also their economic value. For example, it probably is technically feasible to preserve new 1951 automobiles from physical deterioration for a long period; yet 1951 automobiles could hardly be considered "storable" for our purposes, since their value is highly perishable in a world of changing models.

These elementary requirements rule out all services except in so far as they are incorporated in the value of storable

goods, practically all manufactured goods, many products of mining (coal, especially bituminous coal, deteriorates rapidly outside the mine; petroleum and natural gas would be inordinately, if not prohibitively, expensive to store),[13] and many agricultural products—e.g., perishable foods and livestock. There remain primarily storable agricultural products, such as corn, wheat, and cotton, metallic mineral products, and some highly standardized manufactured products such as standard cotton textiles, steel rails, newsprint, standard storable chemicals, and similar items.

But not even all these could be included. Other requirements connected with conditions of supply rule out essentially all agricultural products. The output of agricultural crops is not subject to much deliberate control in short periods. The growing season is relatively long, and vagaries of weather play a substantial role. The consequent inelasticity of current supply would greatly reduce the short-run countercyclical effectiveness of the commodity-reserve standard. In addition, it would raise other difficulties for the commodity-reserve scheme that can be brought out best by an example. Suppose the commodity-reserve scheme were in operation, that wheat were one of the commodities in the currency unit, and that a general deflationary movement happened to coincide with an abnormally short crop of wheat. The deflation would tend to make it profitable to sell commodity bundles to the monetary agency for commodity-reserve currency. Each bundle would have to include a specified amount of wheat. Since wheat would be only one of many items in the bundle, even a small decline in the prices of the other commodities might justify the payment of extremely high prices for wheat for inclusion in commodity bundles. The demand for wheat from this source might be sizable relative to the total supply and so might raise its price substantially above the level that would otherwise prevail.[14] When a basic foodstuff is already in abnormally short supply, would or should the community tolerate the extraction of a large amount and the associated bidding-up of its price, in order to add it to stocks unavailable for consumption? Indeed, would it not instead demand, and quite properly, the use of the previously accumulated stocks of the commodity?[15] It may be

[13] Benhamin Graham includes both petroleum and coal in his most recent illustrative commodity unit. Indeed, the two together account for 21.5 per cent of the total value of the unit and over half the nonagricultural component (see *World Commodities*, pp. 43–45). Petroleum but not coal was included in his earlier unit (*Storage and Stability*, p. 57). Yet in the earlier volume he estimated the cost of storing petroleum at 22 per cent of its average price per year (*ibid.*, p. 108). In the later volume the only justification for including coal is a reference to an article, "Super-normal Granary," by Dr. Frank Thorne, in *Science News Letter*, January 21, 1939, which according to B. Graham, "indicates . . . that both coal and lumber may be stored under water with a minimum of deterioration" (*World Commodities*, p. 148).

Bennett and associates (*op. cit.*, pp. 106–7) exclude both petroleum and coal from their suggested unit as inordinately expensive to store. They also exclude on the same grounds pig iron, which is included by B. Graham.

[14] For example, suppose that there is a strict commodity-reserve standard, that the commodity bundle covers 10–20 per cent of total output (which it might if agricultural commodities could be included), and that the deflation causes double the usual increase in currency. The increase in currency would then amount to about 3 per cent of the national income, or to 15–30 per cent of the usual nonmonetary supply of the commodities in the bundle, or to 14–26 per cent of the usual total supply of the commodities in the bundle. With a short wheat crop this might easily call for 20–35 per cent of the crop.

[15] An ingenious device has been proposed by Benjamin Graham to make possible the use of the accumulated stocks of the commodity under such circumstances. This consists in permitting (or requiring) any commodity in either the reserves or

argued in answer that, while the output of individual crops varies substantially because of the weather, statistical averaging-out yields a relatively stable total agricultural output. But it is the individual crop that is relevant to the commodity-reserve scheme.[16] These considerations clearly call for the exclusion of foodstuffs, and probably justify as well the exclusion of agricultural products like cotton and flax used for purposes other than food.[17]

These considerations apply, it should be noted, only to short-run fluctuations

units sold to the monetary agency to be replaced by futures contracts for that commodity whenever the futures price bears a specified relation to the spot price—in Graham's concrete proposal, whenever the futures price is below the spot price. In general, of course, the futures price will exceed the spot price by costs of storage. The reverse relation is a reasonably clear indication that the current supply and private stocks are abnormally low and hence a good signal to justify the release of commodities from the reserve. F. A. Hayek emphasizes this feature of the plan in his article supporting the plan ("A Commodity Reserve Currency," *Economic Journal*, June–September, 1943, pp. 176–84).

On the whole, this device is about as close to an impersonal and foolproof mechanism for the purpose as could be expected and might well be a desirable feature of a commodity-reserve system not intended as a fundamental monetary reform. I do not consider it a desirable expedient for a commodity-reserve currency primarily because it changes the fundamental character of the currency from a warehouse certificate to an evidence of debt. A currency unit represented in part by a futures contract is logically equivalent to a note promising to pay gold, say, issued under fractional gold reserves. In both cases a fraction of the currency is essentially fiat currency, constituting a claim to nonexistent stocks and depending upon confidence and good faith for convertibility. Further, the fiat element would be "created" by the private individuals who sell the futures. Inability to redeem strict commodity currency cannot occur except as a result of direct fraud or embezzlement; inability to redeem a commodity currency in which futures could replace the commodities is possible. In one version B. Graham suggests that a fraction of the currency corresponding to that nominally backed by the futures contract should not be issued until delivery of the commodity as a means of guaranteeing performance (*Storage and Stability*, p. 70). This would be logically equivalent to eliminating the commodity in question from the unit and later restoring it and so would mean repeated changes in the number of commodities in the unit and its composition.

A number of other considerations also argue against the incorporation of this device in a commodity-reserve currency: (1) Next year's wheat is not the same as this year's; so, no matter how treated, the substitution of futures involves repeated changes in the composition of the bundle. (2) The price relation suggested to determine when futures may be substituted is essentially arbitrary. It would make equally good sense to permit substitution whenever the spot price is below the future by less than some estimated cost of storage. Hence this device introduces precisely the kind of arbitrary and discretionary element that it is of the greatest importance to exclude from a currency scheme whose major virtue is its automaticity and impersonality. (3) It further follows that the device involves interference with a specific price relationship, namely, that between the future and spot price of a particular commodity, thus undermining one of the possible attractions of the plan, that it need involve no interference with relative prices.

It should be noted that the issue is not quantitatively insignificant. Very substantial substitutions of futures could be required at times to keep the futures price equal to the spot price, and there is nothing to prevent the need for such substitutions from occurring in several commodities at the same time.

More generally, proponents of commodity-reserve currency are somewhat disingenuous when they claim the availability of commodity stocks to meet special needs as an advantage of the plan. Either the plan is an essential part of a monetary system designed to be stable and to operate under definite rules, in which case the commodity-reserve stocks must be determined by monetary considerations alone, or it is purely an excuse for *ad hoc* government intervention. One cannot serve two masters at the same time.

[16] The principle of bimetallism could conceivably be used for some group of crops to avoid the problem discussed above. But this would mean a fundamental change in the scheme, involving essentially the fixing of prices, or limits to prices, of individual commodities.

[17] Over 60 per cent of the value of the two illustrative commodity units proposed by B. Graham and over 80 per cent of the value of the unit proposed by Bennett and associates consists of agricultural products. But it must be recalled that their viewpoint is not mine. To quote one comment from B. Graham's earlier book: "The Reservoir plan may be viewed, in large measure, as a proposal for the support and relief of agriculture" (*Storage and Stability*, p. 169).

in output, not to the secular absorption of a fraction of output in order to provide a secular addition to the stock of money. For, over the long run, agriculture, like the other industries involved, would expand to a larger size than in the absence of the monetary demand.

The elimination of agricultural products for these technical reasons not only greatly reduces the potential breadth of coverage of the currency unit but also has important political implications. Producers of agricultural commodities are a vocal and powerful political pressure group. They might be highly favorable to commodity-reserve currency if agricultural products were included in the currency unit; they would probably be indifferent or hostile otherwise. In consequence, their political strength, instead of being an asset, would be a liability, since it would be exercised primarily to have the commodity-reserve scheme take a technically undesirable form. Political support for the scheme is important, it should be noted, not only to have it initially adopted but perhaps even more to prevent "tinkering" with it thereafter.

The elimination of agricultural products leaves only metallic mineral products and standardized products of manufacturing. I know of no detailed study of the value of the annual output of goods in these categories that would be eligible for inclusion in the commodity-reserve bundle, so anything more than a very rough estimate to indicate orders of magnitude is out of the question.[17a] The value of metallic mineral products produced in the United States in 1947 was approximately $3 billion, or about 1½ per cent of the national income.[18] Even some of these might have to be excluded because they are not traded in sufficiently broad and free markets (e.g., aluminum). It is considerably more difficult to make a reasonable estimate for manufacturing; extremely rough and unsatisfactory evidence suggests that the value of eligible manufactured products was probably less than $10 billion in 1947, or about 5 per cent of national income, and possibly very much less.[19]

[17a] The data and calculations in B. Graham, *World Commodities*, and in Bennett and associates, *op. cit.*, do not satisfy our needs because they are concerned exclusively with importance of commodities in international trade and because they are compiled for a different objective.

[18] U.S. Department of Commerce, *Statistical Abstract of the United States, 1949*, p. 759.

[19] To get a rough idea of the magnitude involved, I summed the value added by manufacturing in 1947 for those census industries any substantial fraction of whose products might—so far as an untrained layman could judge—be eligible for inclusion. I included the following industries: sugar, woolen and worsted manufactures; yarn and thread mills, except wool; cotton and rayon broad woven fabrics; narrow fabric mills; lumber and timber basic products; pulp, paper, and paperboard; leather tanning and finishing; cement, hydraulic; structural clay products; and primary metal industries (which includes blast furnaces and steel mills, iron and steel foundries, primary nonferrous metals, secondary nonferrous metals, nonferrous metal rolling and drawing, and miscellaneous primary metal industries). The total value added in 1947 in these industries was $13.4 billion (*ibid.*, pp. 933–43).

1. This is obviously an overestimate of the value added in producing eligible products in the indicated industries, since probably well over half their products would be ineligible for inclusion. For example, $2 billion of the total is for cotton and rayon broad woven fabrics. Much of this must be for style goods of a kind not easily standardized or stored. Further, the reasons justifying the exclusion of cotton from the eligible list would also call for the exclusion of cotton products. Another $6 billion is for primary metal industries. But a large fraction of the output of these industries is in special shapes and other unstandardized products. In addition, even many standardized products might have to be excluded because not traded in sufficiently broad and free markets.

2. On the other hand, there must be many detailed products in other manufacturing industries that would be eligible for inclusion. Examination of the remaining industries suggests, however, that this underestimate is much less than the over-

It seems reasonable, therefore, that commodities in the currency unit would represent something like 3–6 per cent of the current output of the nation for other uses. By including petroleum and coal and making a generous allowance for the inclusion of imported products, this could be stretched to something like 6–11 per cent, but this is certainly an outside figure.[20]

c) PRICE BEHAVIOR OF THE CURRENCY BUNDLE

This breadth of coverage achievable under a commodity-reserve standard is substantial, certainly many times greater than under a gold or silver or symmetallic standard. At the same time it is disappointingly far from the ideal of 100 per cent coverage. Moreover, the commodities readily capable of being included in the currency bundle are highly special and not at all representative of the great bulk of economic activity. For the most part, they are metallic minerals and manufactured products made from metallic minerals. In consequence, there is every reason to expect their relative cost of production to be subject to special influences and to be capable of changing drastically. Stability in the nominal price of the commodity bundle could mean substantial instability in the prices of other commodities.

This expectation can be tested, at least roughly, with existing index numbers of wholesale prices for the United States. Index numbers are available for a long period that purport to describe the price behavior both of "all commodities" and of various subgroups. One subgroup, "metals and metal products," covers a bundle of commodities that overlaps substantially with a feasible commodity-reserve bundle. Perhaps the most important difference in coverage for recent decades is the inclusion of motor vehicles in the "metals and metal products" subgroup. This and other differences in coverage make it impossible to derive accurate estimates of the price behavior that might have been expected under an actual commodity-reserve standard. But they in no way vitiate the use of the index for this subgroup to suggest the kind of variation in price level that could reasonably be expected

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estimate under 1, since I have included all moderately doubtful cases in my list.

3. Another source of error is that value added is not the figure relevant for our purposes. What we want is rather (*a*) the total value of product less (*b*) the value of any part used in producing metallic mineral products—since these have already been counted in the total value of metallic mineral products—and less (*c*) the value of any metallic mineral products used in producing the listed manufactured products—since this, too, has already been counted. It would take an extensive study to get accurate and detailed estimates of these items. However, we know that total value generally runs slightly more than twice value-added. Item *b* would be small and can be neglected. Item *c*, however, would be substantial for the selected industries: most of the $3 billion assigned to metallic mineral products would be used in the primary metal industries included in our selected list.

Eliminating cotton products from the value-added figure, doubling the result to allow for 3*a*, and correcting for 3*b* and 3*c* would yield a total unduplicated value under $20 billion. The $10 billion cited includes a crude allowance for the excess of the overestimate under 1 over the underestimate under 2.

[20] 1. The addition of coal and petroleum, included by B. Graham in his illustrative commodity unit, would add 2–3 percentage points.

2. The items in the unit could, of course, include imported goods. The domestic commodities exported to purchase the imports eligible for the commodity-reserve bundle are then the domestic equivalent for them and should be added. This has implicitly been done already, in so far as the exports would consist of items judged eligible for the commodity-reserve bundle. The order of magnitude of maximum additional allowance on this score is suggested by the fact that imports of crude materials have amounted to something like 1–2 per cent of national income in the last few decades (the excluded categories of imports are crude foodstuffs, manufactured foodstuffs, semimanufactures, finished manufactures) (*Statistical Abstract of the United States, 1948*, p. 909).

to arise under a commodity-reserve currency. A feasible currency bundle would be neither significantly more representative nor cover a much broader segment of economic activity than the metals and metal products subgroup, and the elements common to the two would probably account for the greater part of each.

The metals and metal products category has shown a tendency to decline substantially in price over the last century and a half relative to other commodities. A commodity-reserve scheme with a similar currency bundle would have produced stability in its nominal price and hence substantial inflation in other prices. Table 1 illustrates the possible magnitude of the resulting instability in the general price level. For every tenth year from 1800 through 1940 and every year from 1940 through 1949, it gives an index of the ratio of the wholesale prices of all commodities to the wholesale prices of metals and metal products. The hypothetical index so computed approximates the actual wholesale price index that would have prevailed if the commodity-reserve scheme had been in operation during this period, the commodity-reserve bundle had been identical with that covered by the "metals and metal products" index, and the movements in the relative price of metals and metal products had not been substantially affected by the additional monetary demand for them.

According to this table, prices under such a commodity-reserve currency would have risen by 75 per cent from 1800 to 1870, fallen by over 10 per cent in the next decade, more than doubled from then to 1920, and fallen by more than a fifth from 1920 to 1940. During the decade ending in 1949 prices would

TABLE 1*

INDEX NUMBERS OF WHOLESALE PRICES (1910–14 = 100): HYPOTHETICAL INDEX UNDER COMMODITY-RESERVE STANDARD AND ACTUAL INDEX, SELECTED YEARS, 1800–1949

(Commodity Reserve Unit Assumed Composed of Metals and Metal Products)

Year	Hypothetical Wholesale Price Index	Actual BLS Wholesale Price Index
1800.....	40	129
1810.....	40	131
1820.....	39	106
1830.....	44	91
1840.....	47	95
1850.....	57	84
1860.....	62	93
1870.....	68	135
1880.....	60	100
1890.....	67	82
1900.....	71	80
1910.....	103	103
1920.....	129	226
1930.....	117	126
1940.....	102	115
1941.....	109	128
1942.....	119	144
1943.....	124	151
1944.....	125	152
1945.....	126	155
1946.....	131	177
1947.....	131	222
1948.....	126	241
1949.....	113	226

* Source and derivation of table: From 1800 through 1880, based on Warren and Pearson Wholesale Price Index numbers; from 1890 on, based on Bureau of Labor Statistics Wholesale Price Index numbers. The Warren and Pearson indexes are on a 1910–14 base; therefore, the figures in the table for the hypothetical index through 1880 are 100 times the ratio of their index for "all commodities" to their index for "metals and metal products." The BLS index numbers are on a 1926 base; so the figures in the table for the hypothetical index for 1890 and subsequent years are 100 times the ratio of the BLS index for "all commodities" to the BLS index for "metals and metal products" times a factor to shift the base to 1910–14. This factor is equal to the reciprocal of the ratio of the average value of the BLS index for "all commodities" for the years 1910 through 1914 to the corresponding average value for "metals and metal products." The actual index is taken directly from the indicated sources except that the base of the BLS index was shifted from 1926 to 1910–14. For the basic data see U.S. Department of Commerce, *Historical Statistics of the United States, 1789–1945*, Ser. L-2, L-9, L-15, and L-21; *Federal Reserve Bulletin*, May, 1950, p. 577.

have first risen by almost a third and then have fallen by almost a seventh. Indeed, for the period as a whole, the range of price fluctuations would have been greater under the commodity-reserve scheme than it actually was. Over shorter periods, the hypothetical index shows consistently smaller fluctuations than the actual index only during wartime inflations—when the standard would almost certainly have been departed from. If these are omitted, the hypothetical index shows no greater stability than the actual index even over short periods and considerably less secular stability.

The statistical evidence thus confirms general reasoning. A commodity-reserve currency cannot be expected to give price stability because the currency unit can at best cover only a small and atypical fraction of the economy's output.

d) ELASTICITY OF SUPPLY

The elasticity of supply of the monetary stock under a commodity-reserve currency depends on (1) the possible shifts between monetary and nonmonetary stocks and (2) the elasticity of current supply of the commodity-reserve bundle.

1. *Possible shifts between monetary and nonmonetary stocks.*—The total stocks of metallic mineral and manufactured products held for nonmonetary purposes is, in the ordinary course of events, a small fraction of annual output—costs of storage make larger stocks undesirable, and the elasticity of current output makes them unnecessary. To get an extreme picture, suppose them to be a half-year's output and the total money supply to be equal to a half-year's national income as it currently is in the United States. The nonmonetary stocks of the commodities in the currency unit would then be the same fraction of the money supply as their output for nonmonetary uses was of the nation's output. We have set the latter at 3–6 per cent, so that this would also be an estimate of the maximum normal nonmonetary stocks as a percentage of the total amount of money. This is the relevant figure under a strict commodity standard or a partial commodity standard with a fixed fiduciary issue. Under a fractional reserve standard the relevant figure is larger by a factor equal to the ratio of the total money supply to the "high-powered" money. This is currently less than 3 in the United States, so even in this case the maximum possible expansion in the money supply capable of being produced by the use of nonmonetary stocks would be from 9 to 18 per cent.

These figures are exaggerations not only because we have probably overestimated the size of the stocks in the aggregate but also because we have taken no account of their composition. The nonmonetary stocks can be converted into monetary stocks only in bundles of the proper composition; hence the limit is set by that commodity the stocks of which would make the fewest commodity bundles. It is clear, therefore, that the possible changes in the supply of money via shifts between monetary and nonmonetary stocks are extremely limited.

The limited possibility of changing the monetary supply by diversion to or from nonmonetary stocks means that any change in the desired ratio of the volume of money to the flow of income or to the total stock of wealth would be reflected in the short run primarily in

the level of prices and income; it could be satisfied by a change in the stock of money only in the longer run as the rate of current additions to the stock was speeded up or slowed down in response to the changes in prices. The automatic countercyclical reaction under a commodity standard produced by shifts between monetary and nonmonetary stocks would be largely ineffective under a commodity-reserve standard—a defect the importance of which obviously depends on the sensitivity of expenditures to the fraction of total assets in the form of money.

Under a strict commodity standard there is no compensation for this defect, since shifts into or out of nonmonetary stocks have no indirect consequences for monetary stability. Under a fractional reserve commodity standard, the limited possibility of shifts between monetary and nonmonetary stocks is by no means an unmixed evil, since each unit shifted may require the destruction or creation of several units of money to maintain the same fractional reserve and may thereby threaten the entire monetary structure. Put differently, one source of inherent instability in a fractional reserve system is removed if the basic reserve currency cannot be diverted to nonmonetary use.

2. *The elasticity of current supply.*—The metallic mineral products and manufactured products that would be the major components of the commodity-reserve bundle could be expected to have a fairly high elasticity of current supply. The physical volume of output of metallic mineral products fell by three-quarters in the United States from 1929 to 1932, quadrupled from 1932 to 1937, fell by one-third from 1937 to 1938, and more than doubled from 1938 to 1947. Similarly, the physical volume of output in manufacturing as a whole was halved from 1929 to 1932 and more than doubled from 1932 to 1937 and again from 1938 to 1947.[21] Of course, these changes were associated with, or were induced by, substantial price changes; moreover, the larger changes were over considerable periods; year-to-year changes are much more moderate. Nevertheless, it seems clear that changes in the flow of income that tended to change the relative value of the commodity-reserve bundle could produce sizable percentage changes in the aggregate output of the industries producing commodities in the bundle.

Once again, account must be taken not only of the aggregate output but also of its composition, since the bundle would have to be available in the right proportions. If the possible flows into the commodity reserve were a small fraction of the aggregate output of each commodity separately, this qualification would be unimportant. Any items whose aggregate supply was fairly inelastic could be obtained without raising their prices substantially, and so without reducing substantially the incentive to expansion, by bidding the requisite quantities away from other uses. But this condition is not likely to be satisfied for a commodity bundle the nonmonetary output of which accounts for only 3–6 per cent of aggregate output—at least not if any significant income effects are to be produced. The flow into commodity reserves would on occasion amount to a large fraction of the total output of individual commodities, and hence the necessity of producing the bundle in the

[21] These statements are based on rough deflations of total value of metallic mineral products and income originating in manufacturing. For figures used see *Statistical Abstract of the United States, 1949*, pp. 283, 302, 304, and 759; *National Income Supplement to the Survey of Current Business*, July, 1947, p. 26.

right proportion might reduce substantially the elasticity of its current supply.

The direct countercyclical contribution to income of a commodity-reserve currency depends not only on the elasticity of its current supply but also on the importance of the industries producing the commodities in the bundle. These industries would, of course, be somewhat more important under a commodity-reserve standard than otherwise, since they would expand to provide any secular increase in commodity-reserve stocks. Even so, they would hardly account for more than 4–8 per cent of aggregate output. The significance of this fact can be shown best by an example. Suppose that, under a condition of reasonably full employment, money income and hence the prices of other commodities rise rapidly by 10 per cent, so that the relative price of the commodity-reserve bundle declines by 10 per cent. Suppose that this decline produces a reduction in the output of the bundle of one-quarter (i.e., an elasticity of supply of approximately 2.5) and a corresponding withdrawal from monetary stocks. This would mean a decline in income flows equal to about 1–2 per cent of aggregate income. That is, reductions in the commodity-reserve industries would offset some 10–20 per cent of the assumed initial rise in income. Similarly, under the assumed conditions, additional income flows in the commodity-reserve industries would offset the same percentage of any decline in aggregate income that was reflected primarily in prices (including, of course, wages) rather than in employment.

A countercyclical income offset of 10–20 per cent of the initial movement in income is substantial and suggests that a commodity-reserve currency could conceivably be a fairly powerful stabilizing factor. However, this conclusion may well overestimate the size of the offset, since we have probably used too high a value for both the elasticity of current supply and the fraction of output accounted for by the commodity-reserve industries. Further, the specialized character of the commodities in the currency bundle would make the offsetting variations in income highly localized, both industrially and geographically.

e) PROVISION FOR SECULAR GROWTH

A secular increase in the quantity of money is required in a growing economy if a secularly falling price level is to be avoided. Under a strict commodity-reserve standard or one with a fixed fiduciary issue, i.e., one that involved 100 per cent reserves behind all additions to the circulating medium, the corresponding secular growth in the commodity-reserve stocks would equal the whole increase in the quantity of money. It has already been pointed out that, for the United States during the last half-century or so, this would have required the use of something over 1½ per cent of aggregate resources for the production of commodities to be added to the reserve.[22] In absolute magnitudes, at current levels of national income in the United States, the required average annual addition to commodity stocks would be about $3.5 billion, aside from any costs of storage. If the currency-reserve industries expanded to provide this additional annual

[22] The total volume of money might bear a smaller ratio to the national income under a strict commodity standard than at present because it would be more expensive to hold circulating medium in view of the service charges that depositary institutions would have to make under a 100 per cent reserve system. However, the figure of 1½ per cent makes no allowance for the observed secular decline in velocity of circulation, which itself would raise the figure to over 2 per cent. A decline of about one-quarter in the ratio of the stock of money to national income would be required to offset this factor.

amount, their share in aggregate output would rise from the 3–6 per cent estimated above to about 4–8 per cent, and something like one-fifth to one-third of their total output would, on the average, be destined for addition to commodity reserve.

As noted earlier, the cost of providing for secular growth would be essentially the same under any strict commodity standard; hence the necessity of paying such a price is no argument against commodity-reserve currency as compared with other strict commodity standards. And, indeed, it would be a small price to pay if it would, in fact, purchase monetary stability and if this were the only, or even a markedly superior, way of doing do. But even if the first condition were satisfied, which is by no means clear, the second is not. There are—or seem to be—less costly alternatives. In consequence, it is hard to believe that any nation would deliberately decide to devote so large an amount of its resources to the accumulation of stocks of useful commodities with the definite expectation that they would never be used. This one consideration by itself is almost enough to rule out a strict commodity-reserve standard or one with a fixed fiduciary issue.

Various devices could be used to avoid so large a secular accumulation of reserves. Perhaps the most attractive would be to provide for a regular annual increase in the fiduciary issue by an amount or percentage fixed in advance and rigidly adhered to. It would, however, have to be subject to at least periodic revision to correct errors in its determination. The increase in the fiduciary issue could be used to retire government debt or to pay some part of the government's running expenses. For the rest, the system would be identical with a strict commodity standard. This device could prevent substantial secular increases in the stocks of reserve commodities and so reduce the average annual cost to a moderate figure. It would do so, however, only by sacrificing the possibility of complete automaticity and freedom from political control that in many ways is the greatest—if not the only—advantage of a strict commodity standard over a pure fiat standard.

The annual cost would be greatly reduced if the commodity-reserve currency were used to replace only the existing reserve or high-powered currency and if the present system of fractional reserves were continued. But, even so, it would be significant. As noted, total high-powered money in the United States is currently between one-third and one-half of total currency and demand deposits; therefore, the required secular increase would call for the use of one-half to three-quarters of 1 per cent of national income, or between $1 billion and $2 billion a year in the United States at current levels of national income. Even this cost could be avoided by providing for a regular increase in the fiduciary issue. Either technique would mean political intervention into lending and investing activities and inherent instability in the monetary system.

f) INTERNATIONAL TRADE

Commodity-reserve currency could be adopted by a single country or by several. If adopted by a single country, the rate of exchange between the currency of that country and other currencies could vary. It would be determined in the market or, under present circumstances, more probably by a combination of market forces and government intervention. For the commodity-reserve scheme to be adopted by several coun-

tries, the initial bundle and subsequent revisions would have to be agreed upon either through negotiation or by the adoption by other countries of a bundle initially decided upon by one. The composition of the bundle would be a matter of great importance to the various countries, and considerable disagreement could be expected to arise over the proportions in which the commodities should be combined, as well as over the commodities to be included.

An even more important problem would be the integration of the monetary system with trade policy. The allegedly common monetary standard would be a pure fiction if the various countries impeded the free movement of commodities in the bundle by tariffs, export bounties or taxes, or quantitative controls. Completely free trade in the commodities in the bundle among the countries involved is a prime requisite for the effective international operation of the system. This is a highly congenial and desirable requirement to liberals and would be a strong recommendation for the commodity-reserve scheme if it seemed likely that urgent pressure for commodity-reserve currency would overcome reluctance to abolish trade barriers. It seems reasonably obvious, however, that the situation is more nearly the reverse—unwillingness to submit to complete free trade would prevent serious consideration of commodity-reserve currency as an international monetary standard.

Much the same problem would arise with respect to other monetary and economic policies. The commodity-reserve scheme, like any other commodity standard, would impose its discipline on the entire economic and monetary policy of the countries that adopted it; and it would work well only if all accepted this discipline. In consequence, it seems best to think in terms of the adoption of the scheme by a single large country. Other countries could then adhere to it if they wished.

If the scheme were adopted by several countries along with free trade among them in the commodities in the bundle, exchange rates among the currencies of the various countries could fluctuate only within limits set by the cost of transporting the bundle. This stability of exchange rates would certainly stimulate and facilitate international trade. It is, however, somewhat misleading to regard the stimulation of international trade as a special virtue of the commodity-reserve scheme in any other than a purely political sense. The stimulation of international trade would be a consequence of the adoption of internal policies by the various countries of a kind required to prevent the breakdown of the commodity-reserve standard; the same policies would have the same results even if the various countries were on independent fiat standards (see Sec. III*b* below).

If effectively adopted by several countries, the actual provision of currency in return for commodity bundles or of bundles for currency could be by each country separately or by an international authority. The plan followed would matter only in the event of the ultimate breakdown of the standard, in which case the physical location of the reserves or the locus of legal title to them might determine who got the use of them for other purposes.

III. COMPARISON OF COMMODITY RESERVE WITH ALTERNATIVE STANDARDS

A final judgment about the commodity-reserve standard cannot be reached except by comparison with feasi-

ble alternative standards. To bring out the issues involved, I shall compare it with two widely different alternatives: (*a*) a gold standard and (*b*) a pure fiat standard combined with a stabilizing budget policy.

a) THE GOLD STANDARD

Among commodity standards, the gold standard is by all odds the most attractive alternative to the commodity-reserve standard. It has a long history as a monetary standard; many countries profess to be on a gold standard or to intend to return to or adopt a gold standard. Gold is widely used as a circulating medium, and tens of millions of people all over the world regard gold as "money," if not the only "true" money.

The chief technical difference between the gold standard and the commodity-reserve standard is that the base of the gold standard is much narrower, in the sense that the normal nonmonetary production of gold is a much smaller fraction of aggregate output than the normal nonmonetary production of the commodities that might be included in the commodity-reserve bundle. Offhand, one would expect the broader base of the commodity-reserve standard to mean a stabler price level. It is not clear, however, that this expectation would be realized. The prices of commodities in general would have fluctuated at least as much over the last century and a half if they had been expressed in terms of a currency unit consisting of metals and metal products—which would be the major components of the commodity-reserve bundle—as they did in terms of gold.

The wider base of the commodity-reserve currency would probably make it a more effective countercyclical instrument than the gold standard. This is almost certain to be true of the direct income flows created by expansion and contraction of the industries producing the currency commodity or commodities and hence of the associated expansion or contraction of the money supply. It may not, however, be true of the indirect effect of shifts between monetary and nonmonetary stocks.

In other relevant aspects, the gold standard and the commodity-reserve standard would be essentially identical if one were starting from scratch. Both provide the possibility of essentially complete automaticity and freedom from political control if all changes in the money supply are in the form of the currency commodities themselves or literal warehouse certificates for them. Under either standard this would require the use of substantial resources to provide for secular growth in the money supply. If the community were unwilling to devote the required resources to this purpose, both would tend to become partial commodity standards, probably of a fractional reserve variety. Both would then become subject to political intervention and be part of an inherently unstable monetary system. Both can be international currencies and give fixed exchange rates among countries if the appropriate internal policies are adopted by the countries involved.

Though the two standards would be identical in these respects if one were starting completely from scratch, the gold standard is clearly vastly superior if account is taken of the existing situation. The commodity-reserve standard has no strong emotional appeal, no widespread popular support. No myths have grown about it. Support for it would have to be built from practically nothing. Once adopted, it would be on trial for a considerable period, and there would be

little hesitancy in dropping or changing it. It could easily become a political football rather than a safeguard against political intervention. The gold standard, on the other hand, already has widespread support and emotional appeal. Diluted though it has become, it has unquestionably served to inhibit "tinkering" with the currency. One can conceive—though, I admit, only with some difficulty—of nations again submitting themselves to its stern discipline. I find it hard to conceive of nations submitting themselves to even mild discipline from commodity-reserve currency.

There already exist monetary stocks of gold, so the initiation of a strict gold standard—say, with a fixed fiduciary issue to avoid an enormous increase in the nominal price of gold—would be easier than the institution of a commodity-reserve currency. The business of digging up gold in one part of the world to bury it in another, though occasionally the butt of jokes or the occasion for sarcastic comment, is fairly widely accepted, though by no means understood. The production of a wide variety of obviously useful goods for permanent retention in warehouses, though neither more nor less foolish, is neither accepted nor understood. The chance that a strict gold standard would be allowed to operate, however negligible, is many times the chance that a strict commodity-reserve standard would.

Finally, nominal international free trade in gold already exists, and actual free trade could more readily be obtained than in the commodities it would be desirable to include in the commodity-reserve currency. Agreement on gold would be simpler to achieve than agreement on the contents of the commodity-reserve bundle. On both scores, gold offers more hope of being a feasible international currency.

b) PURE FIAT CURRENCY

The particular variant of a fiat currency with which I propose to compare the commodity-reserve currency is one embodied in a monetary and fiscal framework that I have described and analyzed in some detail elsewhere.[23] This proposal calls for a pure fiat currency issued by the government, combined with 100 per cent reserve banking and the elimination of all discretionary control of the quantity of money by central bank or other monetary authorities. Changes in the quantity of money would be produced entirely through the government budget. Deficits would be financed by issuing additional fiat currency, and surpluses would be used to retire the currency. The quantity of money would therefore expand by the amount of any deficit and contract by the amount of any surplus. Deficits and surpluses themselves would be generated automatically by changes in business conditions. The level of government expenditures, the program of transfer payments, and the tax structure would be held cyclically stable. They would be changed only in response to changes in the range of activities that the community desires to have the government undertake; they would not be changed in response to cyclical fluctuations in business. In consequence, with a progressive tax system and program of transfer payments, cyclical increases in income would tend to generate surpluses, and cyclical decreases to generate deficits.

Under the proposal, changes in the level of public services or transfer pay-

[23] Milton Friedman, "A Monetary and Fiscal Framework for Economic Stability," *American Economic Review*, XXXVIII (1948), 245–64.

ments that the community chooses to have would call for corresponding changes in the tax structure. The change required would be calculated on the basis of a hypothetical level of income corresponding to reasonably full employment at a predetermined price level rather than on the basis of actual income. The principle of balancing outlays and receipts at a hypothetical stable income level would be substituted for the principle of balancing actual outlays and receipts. To provide for a secular increase in the quantity of money, the budget could include an allowance for a regular annual revenue to be derived from an addition to the supply of circulating medium.

This proposal furnishes a national currency standard designed to promote domestic stability. The currencies of different countries would be connected through flexible exchange rates, freely determined in foreign-exchange markets, preferably entirely by private dealings.

This proposal starts with one great advantage over the commodity-reserve standard: it is essentially costless, requiring neither the maintenance of a stock of useful goods destined never to be used nor the diversion of current resources to the production of additional goods to be added to stockpiles.

On the other hand, there are two immediate potential advantages of the commodity-reserve standard. First, because a strict commodity-reserve standard would be completely separate from the government budget and would require no further legislative action, once it was set up, it could be less subject to impairment or destruction through unwise government action and offer less temptation to use currency expansion as a means of financing government expenditures. Second, the commodity-reserve standard could provide an international currency with fixed exchange rates.

Both these potential advantages seem to me largely, if not wholly, illusory. As already noted, the cost of a strict commodity-reserve standard is almost certain to lead to the adoption of devices designed to provide without cost at least some part of the annual addition to the circulating medium required to provide for secular growth. The most desirable arrangement would be a regular annual addition to an initial fiduciary issue, the addition being used to finance government expenditures. But this would link the commodity-reserve currency with the government budget in the same way as the proposed fiat currency, would raise the same necessity for periodic revisions, and would offer the same temptation to overdo the financing of expenditures by currency issue. Of course, overissue of currency would sooner or later undermine the commodity-reserve standard, just as it would undermine the proposed fiat standard. In either case the defense would have to be a willingness to abide by previously accepted rules, and this could be based only on a wholehearted acceptance of the rules and development of a tradition favoring adherence to them. The problem of getting acceptance and developing such a tradition is much the same for the two standards. I do not see that either is obviously simpler or easier to sell.[24]

In order to present the most favorable case for the commodity-reserve currency, I shall assume that only the device of a fixed annual addition to the fiduciary issue is used. But it should be noted that the use of fractional reserves is perhaps a more likely, and far less

[24] In this respect, of course, the gold standard has a head start on either of the other two standards.

satisfactory, outcome of the attempt to avoid the costs of a strict commodity-reserve standard. It would mean government intervention into lending and borrowing and inherent instability in the monetary system. Fractional reserve banking might not be eliminated under the fiat standard either. Its retention would not, however, be fostered by pressure to create more than one kind of circulating medium to reduce the costs of providing for secular additions to the money supply.

As to international arrangements, the desideratum is not fixed and rigid exchange rates but stable exchange rates. If a number of countries adopted the proposed fiat standard and adhered to it, the resulting stability in internal prices and business conditions would automatically produce reasonably stable exchange rates, just as would adoption of the commodity-reserve standard and adherence to it. The failure of any country that adopted the fiat standard to follow stable internal policies would be reflected primarily in exchange rates and would have only secondary effects on international trade and on other countries. On the other hand, the failure of a country that adopted the commodity-reserve standard to follow stable internal policies would be the source of internal difficulties for other countries on the same standard and would threaten the maintenance of the standard. The country following the unstable policies would probably be forced off the standard ultimately; in the meantime, however, international trade might have been seriously disturbed and pressures for interferences with free trade created. Thus on this score, too, the advantage seems to be with the flexibility of the fiat standard rather than with the rigidity of the commodity-reserve standard, entirely aside from the difficulties enumerated above of getting effective international adoption of the commodity-reserve standard.

The two other respects in which it is important to compare the commodity-reserve and fiat standards is the behavior of the price level and the effectiveness of countercyclical reactions.

The "absolute" element in the fiat standard that makes the level of prices determinate is the fixed tax structure, with its exemptions, tax rates, and so on expressed in nominal currency units and the fixed transfer program similarly expressed in nominal currency units. The relation between the yield of this tax system minus payments under the transfer program and the cost of the fixed government services determines whether the government budget exerts an influence toward higher or lower prices. This means that the standard will itself be a source of instability if there are changes in either the yield of the fixed tax and transfer structure for a given per capita income[25] or in the relative price of government services. Changes in yield would arise primarily because of changes in the inequality of the distribution of income, and these have historically been extremely small. The bundle of goods and services bought by government is highly varied; therefore, its relative price should not fluctuate greatly. Put differently, the "base" of the fiat standard is, as it were, a complex weighted average of incomes subject to tax or to supplementation through transfer payments and of prices of goods and services purchased by government. This is currently wider and more representative than the base of a commodity-reserve standard. The fiat standard could therefore be expected to

[25] Changes in population might be expected to affect both tax receipts and expenditure in much the same proportion.

be the source of less price instability than the commodity-reserve standard.

The secular behavior of the price level of final products to be expected under the fiat standard depends on the precise details of the arrangements made to provide for secular growth and is more difficult to predict.[26] But there is even greater uncertainty about the secular behavior of the price level under the commodity-reserve standard, since this depends on the future behavior of relative costs of production.

Under the fiat standard there is no possibility of changes in the supply of money via shifts from monetary to nonmonetary stocks; hence this possible countercyclical reaction is absent. Although small under the commodity-reserve standard, this reaction is present. Under both standards, however, the dominant countercyclical reaction is produced by offsetting changes in the flow of income and the associated creation or destruction of money. Under the commodity-reserve standard the offsetting flows of income occur in the industries producing the commodities in the currency bundle. Under the fiat standard they occur through changes in the government budget—the government is, as it were, producing the commodities in the fiat currency bundle. As we have seen, the induced flow of income under the commodity-reserve standard might, at most, offset 10–20 per cent of the initiating change in income. Various estimates suggest that in the United States the induced flow of income under the fiat standard would currently offset at least a quarter and possibly more than a third of the initiating change in income.[27] So both the direct countercyclical income effect and the associated indirect effect through the change in the community's stock of assets and of money would be something like two to three times as large under the fiat standard as under the commodity-reserve standard.[28]

The transitional problems associated with the introduction of the two standards would in many respects be the same. Both would call for the same banking reforms, for the same surrender of present discretionary authority, and for the adoption of similar fiscal rules. The commodity-reserve scheme would, in addition, require agreement on the composition and price of the commodity bundle, the accumulation of an initial reserve, and the provision of storage facilities. The fiat standard would require the selection of a hypothetical level of income and budget principle. It would require no change in the fiscal structure, since a large degree of built-in flexibility already exists in the government budget. On the whole, these transitional problems seem somewhat less serious for the fiat standard.

IV. CONCLUSION

The commodity-reserve scheme can be carried only a small way toward the symmetallic ideal of universal coverage of an economy's output. The necessity for the commodities in the currency unit to be standardized, traded in broadly based markets, supplied under reasonably competitive conditions, and physically and economically storable limits the commodities eligible for inclusion

[26] See Friedman, *op. cit.*, p. 263 and n. 22; Mints, *op. cit.*, pp. 215–19.

[27] This is based on R. A. Musgrave and M. H. Miller, "Built-in Flexibility," *American Economic Review*, March, 1948, pp. 122–28, and other scattered bits of evidence.

[28] A larger effect is not necessarily conducive to greater stability. There is some optimum beyond which supposedly greater anticyclical reactions may increase rather than decrease instability. I doubt that the fiat standard does go beyond this optimum, but I can offer little support for this (see Milton Friedman, "Rejoinder to Philip Neff," *American Economic Review*, September, 1949, pp. 950–51 and n. 2).

largely to agricultural field crops, metallic mineral products, and highly standardized manufactured products. The impossibility of controlling the output of agricultural crops over short periods and the dependence of agricultural output on the erratic forces determining growing conditions make them undesirable components of the bundle. The remaining products—metals, some metal products, and some other standardized manufactured goods—would probably not account for more than 3–6 per cent of the normal output of a nation like the United States.

This narrowness of coverage means that the commodity-reserve standard could not be expected to yield reasonably stable prices either secularly or over fairly short periods. Changes in the relative cost of production of the currency commodities would themselves be a potent source of price instability.

The normal nonmonetary stocks available for conversion to monetary stocks would be small, so that the quantity of money would change primarily through additions from current output or subtractions for current use. The countercyclical reactions of a commodity-reserve scheme would therefore operate primarily through variations in the rate of output of commodity-reserve industries. Since these have a fairly elastic current output, any decline in other prices would lead to a substantial increase in their output, thereby adding both to the stock of money and to the flow of current income; any rise in other prices would have the opposite effects. The offsetting flow of income might be as much as 10–20 per cent of the initiating change. The associated changes in the quantity of money would affect both the total volume of real assets held by the community and the fraction of total assets in the form of money, and these, in turn, would have additional countercyclical effects on expenditures and income. Commodity-reserve currency would therefore have substantial potency as a countercyclical instrument.

The commodity-reserve scheme would have the virtue of almost complete automaticity and freedom from political control if it were made the only means of changing the supply of circulating medium, i.e., if it were combined with 100 per cent reserve banking and all other means of issuing currency were eliminated. But in that case a steady accumulation of commodity stocks would be required to provide secular growth in the stock of money, and this would mean the use of very substantial amounts of resources for this purpose. Devices for reducing this cost would undoubtedly be adopted at the sacrifice of the freedom from political control and intervention.

The commodity-reserve scheme could operate internationally and produce stable exchange rates if, and only if, the various countries were willing to permit complete free trade in the commodities in the bundle and to submit their internal monetary and economic policies to its discipline.

Compared with a gold standard, commodity-reserve currency has one significant technical advantage—its greater potential capacity for offsetting cyclical movements in income, production, and employment. For the rest, the two standards are technically nearly equivalent. Both rest on a relatively narrow and unrepresentative base and so could themselves be the source of fluctuations in the price level. Despite its somewhat broader base, available evidence suggests that a commodity-reserve standard would be at least as unsatisfactory in this respect as a gold standard. Both require the use of resources to provide for secular growth in the stock of money

and so give an incentive for the introduction of fiat money. Both could be international standards with fixed exchange rates between countries.

The possible technical advantage of the commodity-reserve currency is, in my view, more than outweighed by its tremendous inferiority to gold in the ability to command unthinking support and reverence. The only basically attractive features of any commodity standard are the restraints it can impose on unwise political intervention and the possibilities it offers of an international currency. If political intervention is not to be feared either because it is universally wise or because other restraints exist, there is no reason to waste resources in piling up monetary stocks instead of adopting the essentially costless alternative of a fiat standard. But a commodity currency can be a bulwark against political intervention and attain acceptance by many countries only if the popular support for it is sufficiently strong and widespread to make "tinkering" with it politically dangerous and to overcome differences in national interests and attitudes. Gold has had, and may still have, this kind of support. Commodity-reserve currency does not.

Widespread support for commodity-reserve currency cannot be expected to develop in the same way that the present support for gold arose—through its acceptance as a standard by accident and historical evolution rather than by design, through long experience with its use and relative stability in value during repeated collapses of fiat currency, through the benefits derived by persons who held the actual currency commodity instead of other forms of money, and through the rest of the long historical process responsible for the mythology of gold.

Support for commodity-reserve currency would have to come through persuasion; the community would have to be convinced that it was the best available currency standard. It is, of course, not impossible that the community could be so convinced. But our comparison of the commodity-reserve standard with a strict fiat standard linked to an automatically stabilizing government budget indicates that conviction could not be based on the technical superiority of the commodity-reserve currency; it would have to be based on essentially nonrational grounds. In every important respect the commodity-reserve currency is technically inferior to the fiat currency. It involves substantial costs of accumulating reserves of commodities, whereas the fiat currency would be essentially costless; it would, in consequence, give a greater incentive for the retention or extension of inherently unstable monetary arrangements and of unnecessary government intervention into lending and investment activities; it would itself be the source of greater instability in prices and economic conditions than the fiat standard; it would probably be less effective in countering any instability arising from other sources; it would not promote international trade any more effectively than the fiat currency if a group of countries submitted themselves fully to the discipline of the one or the other; and it would cause greater disturbances to international trade if any countries departed from the one or the other standard.

In seeking to gain the countercyclical advantages of a fiat standard while retaining the physical base of the gold standard, commodity-reserve currency seems to me to fall between two stools and, like so many compromises, to be worse than either extreme. It cannot match the nonrational, emotional appeal of the gold standard, on the one hand, or the technical efficiency of the fiat currency, on the other.

THE ALLEGED INFLEXIBILITY OF COMPENSATORY PUBLIC WORKS POLICY

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HISTORICALLY, compensatory public works policy has been regarded as one of the chief means of achieving continuing full employment. In planning for economic demobilization after World War I, public works policy was the principal device for assuring a smooth transition to a peacetime economy;[2] it was foremost among proposals for economic stabilization during the 1920's;[3] it was one of the main pillars of the New Deal during the depression of the 1930's;[4] and it occupied a central place in planning for full employment after World War II.[5]

Recently, however, public works policy has been rejected by two eminent groups of economists as a major instrument in automatic compensatory policy on the grounds that it lacks the requisite flexibility.[6] The United Nations Group

[1] The author is a member of the Economic Division of the International Labor Office; but the contents of the article are entirely his own responsibility, and no indorsement by the International Labor Office is implied. The manuscript has been read by James L. Burtle and Anthony Dawson, and I am indebted to them for helpful comments.

[2] Cf. the author's "Public Works Program after the World War I," *Journal of Political Economy*, December, 1943, pp. 523–37, and the *Economics of Demobilization* (Washington, D.C.: Public Affairs Press, 1944), chaps. vii and xiv. For a discussion of pre–World War I views on compensatory public works policy see Leah Hannah Feder, *Unemployment Relief in Periods of Depression* (New York: Russell Sage Foundation, 1936).

[3] Cf. the author's "Public Works Policy during the Twenties," *Social Research*, December, 1946, pp. 479–501.

[4] Cf. National Resources Planning Board, *Security, Work and Relief Policies* (78th Cong., 1st sess.; House of Representatives Doc. 128 [Washington, D.C., 1943]), Part III.

[5] See, e.g., *The Winning Plans in the Pabst Post-war Employment Awards* (Milwaukee: Pabst Brewing Co., 1944); Émile Benoit-Smullyan, "Seventeen Post-war Plans—the Pabst Post-war Employment Awards," *American Economic Review*, March, 1945, p. 125; Nuffield College, *Employment Policy and Organisation in Industry after the War: A Statement* (London: Oxford University Press, 1943), pp. 28–29; United Kingdom Government, *Employment Policy* (London: Macmillan & Co., 1944), pars. 57–66; Canadian Department of Reconstruction, *Employment and Income* (Ottawa: King's Printer, 1945), p. 15; Parliament of the Commonwealth of Australia, F. 2834, *Full Employment in Australia* (Canberra: Government Printer, 1945); and the 1946 recommendations of the International Development Works Committee quoted in Benjamin Higgins, *Public Investment and Full Employment* (Geneva: International Labor Office, 1946), p. 303.

[6] The importance of and the obstacles to flexibility in public works have been recognized throughout the literature. Many friendly critics have emphasized the fact that a lack of advance technical, financial, and administrative planning may seriously limit the ease with which public works can be expanded to stabilize employment. Lord Keynes himself was impressed with such considerations (John Maynard Keynes, "An Economic Analysis of Unemployment," in *Unemployment as a World Problem* ["Harris Foundation Lectures" (Chicago: University of Chicago Press, 1931)], pp. 37–38). A number of students, among them many supporters of a compensatory policy, have pointed to the difficulties of co-ordination in a country with a multiplicity of governmental units. See, e.g., Georg Bielschowsky, "Business Fluctuations in Public Works," *Quarterly Journal of Economics*, February, 1930, pp. 303–4; Leo Wolman, *Planning and Control of Public Works* (New York: National Bureau of Economic Research, 1930), pp. 173–74; Paul H. Douglas and Aaron Director, *The Problem of Unemployment* (New York: Macmillan Co., 1931), p. 215; Karl Pribram, "World Unemployment and Its Problems," in *Unemployment as a World Problem* (Chicago: University of Chicago Press, 1931), pp. 129–30; J. E. Meade, *Consumers' Credits and Unemployment* (London: Oxford University Press, 1938), p. 11; John M. Clark, "An

of Experts has concluded that "in general . . . public works can not, in our opinion, be varied rapidly enough to fulfil the necessary criteria for such a scheme [i.e., an automatic compensatory scheme] by themselves."[7] The criteria by which the experts disqualified public works as an appropriate automatic compensatory measure are as follows:

> First, they should be capable of raising effective demand promptly and throughout the economy; secondly, they should be of a quantitative nature so that their effect on demand and employment could be estimated with a fair degree of reliability; thirdly, their quantitative magnitude should be sufficient to reduce the levels of unemployment (taking into account both primary and secondary effects) to the mean percentage of the full-employment range.[8]

The President's Council of Economic Advisers has taken a similar view with regard to the compensatory role of public works.

> There are valid reasons why public works cannot accomplish as much toward stabilization as some have proposed. In the event of severe unemployment, they cannot be generated in sufficient volume to avoid supplementation by other means. In a period of mild recession, they cannot be generated in time to be fully effective. If the tempo of the public-works program is geared to some business index, the reserves accumulated for emergency use may be used after they are needed and they then become inflationary rather than stabilizing. Even if advance preparations are made through the completion of plans, the acquisition of sites, and the accumulation of funds, there will be an inevitable time lag between calling the emergency program into operation and the employment of men on the job.[9]

It is the thesis of this paper that we have reached a stage in the development of employment policy where the present concept of public works (meaning thereby primarily public construction) obstructs a clear analysis and understanding of the role which public employment may play in compensatory economic policy. It must be admitted that the charge of inflexibility is generally tenable with reference to new public construction because of inherent engineering and contractual characteristics. But it is a mistake to assume that there is only one type of public employment.[10] Actually, there are five: (1) public construction, such as roads, dams, schools, and public buildings; (2) land development programs, such as soil conservation, forest development, and rangeland improvement; (3) public service projects, such as adult education, recreation, research, public health, and art and cultural activities; (4) public production projects, such as the utilization of surplus commodities in canning, sewing, and furniture-making; and (5) purchases of equipment and supplies by local and central governments and publicly owned enterprises.

Appraisal of the Workability of Compensatory Devices," *American Economic Review, Supplement*, March, 1939, pp. 204–5; and R. F. Bretherton, F. A. Burchardt, and R. S. G. Rutherford, *Public Investment and the Trade Cycle in Great Britain* (London: Clarendon Press, 1941), pp. 178–89. Although the two above factors may be overcome through farsighted, intelligent public action, the third objection, i.e., engineering limitations inherent in public construction on a contract basis (which in the traditional conception is more or less coterminous with public works), is something largely beyond human control.

[7] *National and International Measures for Full Employment* (Lake Success: United Nations, 1949), p. 83.

[8] *Ibid.*, p. 82.

[9] *The Economic Report of the President Transmitted to Congress* (Washington, D.C.: Government Printing Office, January, 1947), p. 27. Cf. also the joint statement of economists on "Federal Expenditure and Revenue Policy for Economic Stability" to the Joint Committee on the Economic Report, *Federal Expenditure and Revenue Policies, Hearing before the Joint Committee on the Economic Report* (81st Cong., 1st sess. [Washington, D.C., 1949]), p. 8.

[10] It is not a requisite of public employment that the government itself be the employer. Actually the bulk of new public construction and practically all purchases of equipment and supplies are carried out on a contract basis with private firms.

Some objection has been raised to expanding the meaning of public works to include more than public construction and land development. Thus, although he does not specifically say so, Sherman Maisel would presumably rule out public service and production projects on the grounds that they are not "deemed economically useful" and that "if the economic criterion is removed the basic argument for this method of expenditure has disappeared."[11] It is true that some of the projects and operating principles of the Work Projects Administration and Civil Works Administration, to which he specifically objects, may be indefensible when judged by the economic criterion, and particularly from the point of view of a continuing optimum allocation of resources. On the other hand, several opposing considerations are relevant.

In the first place, the basic economic criterion (i.e., the most efficient allocation of scarce resources among many competing ends) is not strictly applicable as a macro-economic principle in an economy containing substantial idle resources. Second, a thorough examination of WPA and CWA experience will, I believe, indicate that most of the "uneconomic" features could have been eliminated through different institutional arrangements. Third, it would seem difficult to deny that as a whole the public service and production programs during the 1930's were economically useful.[12] As a matter of fact the direction of the so-called "modern welfare state" is certainly to enlarge the area of "essential" public services.

Although the necessity for a clarification of public works policy may be granted, the means for bringing about the necessary broadening of concepts are much less evident. Benjamin Higgins has suggested the substitution of "public investment" for "public works."[13] However, this latter term has two serious drawbacks. In the first place, investment refers to the creation of fundable values, generally in some physical form. While some service and production projects might be included under investment broadly construed, as a whole they could hardly be described as investment. Second, the word "investment" has several different connotations and is not exclusively an employment concept. Although the "public investment" concept escapes relief works connotations that have been attached to public works in some circles, a term is needed to cover in a direct and comprehensive way the range of public employment activities.

A second possible term would be "public employment." But, while conveying the desired change in emphasis, such a use of the word "employment" would immediately engender confusion, since people would be likely to identify "public employment" activities with "employment policies" as a whole, of which public works is only one.

A third possible term is "public work." The word "work" is a broad, nonrestrictive term embracing all types of employment, in contrast with the word "works," which carries a connotation of something physical, an engineering feat, in short, construction.[14] The major objec-

[11] Sherman J. Maisel, "Timing and Flexibility of a Public Works Program," *Review of Economics and Statistics*, XXXI (1949), 147–48.

[12] For an excellent study and appraisal of five types of public service employment, primarily from the cultural viewpoint, see the forthcoming study on "The WPA Arts Program" which was financed by the American Council of Learned Societies and directed by W. F. McDonald of Ohio State University. See also Work Projects Administration, *Final Report on the WPA Program, 1935–43* (Washington, D.C.: Government Printing Office, 1946), pp. 59–71.

[13] *Op. cit.*, pp. ii–iii, 35, 347–48.

[14] The term also has the historical advantage of having already been used in this sense by the short-

tion to this term is that the deletion of the letter *s* is such a slight change that the reader may observe no difference,[15] or, if it is observed, it may suggest merely an oversight or peculiarity on the part of the author and not a change of substance. Moreover, even if in technical usage "public work" covered all types of public employment while "public works" was restricted mainly to public construction, it is unlikely that confusion between the two concepts could be avoided in the layman's mind. The practical course, short of coining a new word, would therefore appear to be to expand the scope of the term "public works" by serious discussion of the concept itself.

There is a marked variation in flexibility among the five major types of public work, particularly as revealed in the public works experience of the United States during the 1930's. The record of the Public Works Administration, the chief compensatory program in new public construction, suggests the difficulties that are to be encountered in timing public construction as well as the improvements that can be made in speeding up the inauguration of a compensatory program.

Galbraith and Johnson's study shows that in the 1933 PWA program it was practically a year after the date of allotment by the federal administration before 90 per cent of the contracts on nonfederal projects had been awarded. When General Philip Fleming was Federal Works Administrator, he was constantly emphasizing the fact that in 1933, when the Public Works Administration was first set up and given an appropriation of $3.3 billion to spend on public construction as quickly as possible, it took eighteen months before 100,000 men were employed at the work site on nonfederal projects.[16] By contrast, in the 1938 PWA program 90 per cent of the contracts had been awarded within a hundred days after the date of allotment. With regard to federal projects, the bulk of the projects in the 1938 program were under contract within six weeks after the date of allotment.[17] In the judgment of experienced engineers, the irreducible minimum of time required to put a project under contract is approximately four weeks. Proper advertising of bids requires about two weeks, another week is necessary for contractors to consider bids; and a fourth week is needed for the contract to be signed, the bond to be posted, and other formalities completed.

Once the contract is awarded, the length of time before construction starts is determined mainly by the time of year, the size of the project, and the efficiency of the contractor. In a representative sample of 229 PWA projects, Galbraith and Johnson found that for contracts awarded in the months November

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lived Public Work Reserve, which was established by executive proclamation in May, 1941, within the Federal Works Agency under the joint sponsorship of the National Resources Planning Board and the Work Projects Administration. The PWR was set up to encourage and assist state and local governments in preparing a reserve of projects, particularly of nonconstruction projects, which would be available to help maintain full employment in the postwar readjustment period. Accordingly the terminology Public Work Reserve was adopted instead of "public works reserve." Cf. Benjamin Higgins, "The United States Public Work Reserve," *International Labour Review*, November, 1944, pp. 581–602.

[15] E.g., Maisel adds an *s* to the word "Work" in the name of the agency—Public Works Reserve (*op. cit.*, p. 152).

[16] See his testimony in *Hearings before the House Committee on Public Buildings and Grounds: Postwar Planning* (78th Cong., 2d sess. [Washington D.C., 1943]), pp. 22–23.

[17] J. K. Galbraith and G. G. Johnson, Jr., *The Economic Effects of the Public Works Expenditures 1933–1938* (Washington, D.C.: National Resources Planning Board, 1940), pp. 78–82.

through February the average time to start of construction was 57 days, or almost double the time for contracts let in the months March to October.

Less variability was found between different kinds of construction. For the sample as a whole there was an average of 48 days between the awarding of the contract and the actual beginning of construction, for building construction an average of between 38 and 45 days, and for sewage projects 60 days. Highway contracts were extremely variable depending on the season.[18] As the size of the project increases, employment peaks are retarded. Thus projects with a cost range of $1,000–$50,000 reached peak employment in the second month, whereas projects costing over $1,000,000 reached their peaks in eight to ten months.[19] The flexibility of public construction on the contraction side has not as yet been the object of careful study, but engineers testify to the difficulties involved.

Maisel found similar construction delays in his examination of Federal Public Housing Authority experience. For the average housing project there was a delay of slightly over a year between presidential approval and the awarding of the contract. For the defense program this time was reduced to eight months. Within the FPHA, it was hoped that the time could be cut still further to four months. Actual construction on an average project took thirteen months until completion of the initial units and fifteen months until final completion of the project; on defense projects, initial units were completed within ten months on the average, and the final ones in fourteen months.[20]

[18] *Ibid.*, pp. 84–86.

[19] *Ibid.*, pp. 92–98.

[20] *Op. cit.*, p. 149.

Land development exhibits quite a different pattern. Within two months after the establishment of the Civilian Conservation Corps in April, 1933, a quarter of a million men had been put to work in CCC camps.[21] My studies of rural public works confirm further the great possibilities of rapid expansion and curtailment of employment in the three major types of land development: namely, soil conservation, forest development, and rangeland improvement.[22] Land development programs would, therefore, appear to possess the flexibility required for automatic compensatory action.[23]

It is much more difficult to find conclusive historical evidence concerning the flexibility of public service and public production programs during the 1930's. In part, this is due to the lack of detailed employment statistics, but mainly to the fact that local indifference and opposition were much more important factors limiting expansion than were inherent difficulties of operation.[24]

It is of some significance, however, that the Civil Works Administration program established in November, 1933, expanded employment to over 4.3 million by January, 1934, and that the Work Projects Administration expanded its employment from 375,000 in September, 1935, to 2.5 million in December,

[21] Civilian Conservation Corps, *Statement of the Director of Emergency Conservation Work Covering the Activities of the Civilian Conservation Corps during the Period April 5, 1933 to April 5, 1937* (Washington, D.C., 1937), p. 7.

[22] Cf. the author's "Dovetailing Rural Public Works into Employment Policy," *Review of Economic Statistics*, August, 1946, pp. 165–69.

[23] For an interesting proposal to integrate agricultural price supports with land development on a compensatory basis see Theodore W. Schultz, *Agriculture in an Unstable Economy* (New York: McGraw-Hill Book Co., 1945), pp. 221–35.

[24] See, e.g., John Charnow, *Work Relief Experience in the United States* (New York: Social Science Research Council, 1943), pp. 80 ff.

1935, and to over 3 million in February, 1936.[25] The rapid expansion of the CWA and the WPA was achieved primarily by using the force-account method of work (i.e., the government as direct employer) and by concentration on construction maintenance, land development, public service, and public production projects. Preliminary investigation of the planning and administrative processes involved in operating a public service and public production employment program indicate further that there is no sound basis for excluding public service and production employment from the realm of automatic compensatory policy merely on the grounds of inflexibility.

The fifth type of public works—purchases of equipment and supplies—has adequate flexibility, since contracts can be placed quickly if a downturn takes place in the industries producing such equipment and supplies. In practice, however, compensatory possibilities in this area will be relatively small, since there are limits to the amount of supplies that can be prudently stock-piled and to the amount of equipment which can be placed on a countercyclical purchase basis.

The fact that three of the five types of public works are characterized by high flexibility in operation has great significance for the formulation of compensatory employment policy, as will be indicated by a brief examination of the potential employment capacity of each type of work. Under the Public Works Administration, employment on nonfederal projects reached a peak of almost 250,000 in July, 1936, while the peak for federal projects was reached in June, 1934, at almost 450,000.[26] A substantial amount of new construction was also carried out by the work relief agencies, that is, the Federal Emergency Relief Administration and the Work Projects Administration, and by the Civilian Conservation Corps, which was in addition to "regular" public construction. Total public construction employment during the 1930's reached an average monthly peak of 843,000 in 1936, while under the impetus of war it reached a peak of 1,950,000 in August, 1942.[27] The employment capacity of an efficient compensatory public construction program is, however, still higher and may be estimated by deducting the lowest level of construction employment reached during the 1930's (as representing the worst possible situation) from the "normal" volume of construction employment that will be reached when construction is contributing its fair share to the national income.[28]

As a result of wide discussion and many different calculations in the period 1942–45,[29] general agreement was reached that $15 billion of new construction (1945 costs) was a reasonable minimum postwar goal for the construction indus-

[25] Theodore E. Whiting and T. J. Woofter, Jr., *Summary of Relief and Federal Work Program Statistics, 1933–40* (Washington, D.C.: Federal Works Agency, 1941), p. 46.

[26] *Ibid.*

[27] Bureau of Labor Statistics, *The Construction Industry in the United States* (Bull. 786 [Washington, D.C., 1944]), p. 7.

[28] Any substantial expansion of employment in the construction industry beyond the level achieved under conditions of continuing full employment would not only unbalance the economy but would also be at the expense of efficiency because of the lack of skilled construction workers and possibly a shortage of modern equipment.

[29] For the major postwar projects in construction see Public Works Construction Advisory Committee, "Timing of Public Works Construction as a Measure for Stabilizing the Construction Industry" [Washington, D.C.: Federal Works Agency, 1945), p. 12 (mimeographed); "From Budgets to Blueprints: A Statistical Summary through June 1945," *Engineering News-Record*, 1945, p. 2.

try. Using the Federal Works Agency estimate that the 1945 cost of an average actual work-year of 1,600 hours was roughly $5,500,[30] $15 billion of new construction would provide on-site employment for around 2,750,000 men.[31] Record total new construction employment was reached in September, 1941, at 2,879,000 under the stimulus of the emergency war construction program.[32]

Assuming that future unemployment will not exceed that of the thirties in severity, private construction will not fall below $2.5–$3 billion (1945 costs) or employ less than approximately half a million men.[33] If the lowest level of private construction employment were around 500,000, then the theoretical capacity of an efficient compensatory public construction program would be in the neighborhood of 2,250,000 workers. Actually, if appropriate measures were taken to promote a high level of private construction, employment would not be likely to fall lower than one million in the worst of situations.

Much less analysis has been made of construction maintenance, chiefly because of the lack of reliable data. Colean has found that maintenance constituted on an average 4 per cent of national income over the twenty-year period 1920–39.[34] The Producer's Council estimated in 1945 that the share of maintenance in a postwar full-employment economy (1945 costs) would be around $5 billion.[35] If $5 billion of maintenance (1945 costs) is set conservatively as a stabilization goal, then postwar maintenance will provide roughly 1.5 million on-site jobs[36] (taking the Federal Works Agency estimate that an average actual work-year of 1,600 hours cost around $3,500 in 1945).[37] Assuming that private maintenance employment will not fall lower than in the thirties even under the worst of conditions, approximately half of the maintenance workers will be retained on private pay rolls.[38] Consequently, the

[30] Unpublished estimate supplied through the courtesy of Harry B. Sheftel, director of the Office of Economic Research, General Services Administration (formerly Federal Works Agency).

[31] Actually construction activity, as measured by the value of new work put in place, reached a record high of $19.3 billion for 1949, employing at the peak in September, 1949, over 2,340,000 workers (Bureau of Labor Statistics news release, January, 1950). But construction's share in the national income was still less than 8.7 per cent compared with the prewar average of 10.7 per cent (see testimony of Robinson Newcomb, *Hearings before Special Senate Committee To Study and Survey Problems of Business Enterprise: Problems of Small American Business* [79th Cong., 1st sess. (Washington, D.C., 1945)], p. 7627). In short, construction had not yet reached a "normal" relationship to the economy as a whole. If, as may be suggested by these figures, postwar full employment is to be achieved at a lower ratio of construction to national income than existed in the prewar period, then corresponding adjustments need to be made in the above calculations of the employment capacity of an efficient compensatory public construction program.

[32] Bureau of Labor Statistics, *op. cit.*, p. 7.

[33] In 1933 the dollar volume of total construction fell to $1 billion, while private construction fell to $452,000,000 (Department of Commerce, *Construction and Construction Materials, Statistical Supplement*, May, 1949, p. 5). Total construction employment in 1933 fell to an average monthly level of 976,000, of which 452,000 was accounted for by private construction (Bureau of Labor Statistics, *op. cit.*, p. 7).

[34] Miles Colean, *Stabilizing the Construction Industry* (Washington, D.C.: National Planning Association, 1945), p. 6.

[35] Unpublished estimate supplied through the courtesy of Frank Piovia, former market analyst of the Producer's Council.

[36] Actually construction maintenance in 1948 totaled $8 billion in a national income of $226 billion or a percentage of 3.5 (Department of Commerce, *op. cit.*, p. 15).

[37] Unpublished estimate supplied through the courtesy of Harry B. Sheftel.

[38] The dollar volume of private maintenance in 1933 was 47 per cent of total maintenance in 1929, corrected for price changes (*Survey of Current Business*, November, 1945, p. 24); corrected by index of construction costs (*Statistical Abstract*, 1942, p. 1003).

employment capacity of a compensatory public construction maintenance program designed to stabilize construction maintenance at its "normal level" would be in the neighborhood of 700,000 workers, which might be increased to one million without a sacrifice in efficiency of operation.

Peak employment on land development under the Civilian Conservation Corps during the thirties was around 500,000,[39] and there is no indication that the saturation point was reached. In fact, investigation of the employment capacity of land development indicates that it is over three times the peak reached under the CCC.[40] Moreover, the expansive possibilities are substantially increased, if public expenditures on private land are permitted under specific conditions protecting the public interest.[41]

On public service projects under the Work Projects Administration peak employment reached almost 800,000.[42] Preliminary study of the employment capacity of public service projects indicates that this figure could have been increased several times without jeopardizing efficiency in operation. On public production employment, peak employment reached 350,000 under the Federal Emergency Relief Administration in December, 1934.[43] If program efficiency were the only criterion of employment capacity, public production employment could be expanded to many times the 1934 maximum. But substantial expansion beyond that peak involves the danger of competition with private enterprise.

It is to be seen, therefore, that new public construction accounts for hardly one-third of the on-site employment capacity of an efficient compensatory public works program. To judge the appropriateness of compensatory public works policy solely by the limitations affecting new public construction and to ignore the large potentialities of other types of public works is, to say the least, a serious oversight.

This paper has been concerned chiefly with the flexibility of public works. Although three types of public works meet the criteria for automatic compensatory action laid down by the United Nations Group of Experts, there may be other and more solid grounds for reserving judgment about the place of public service, public production, and possibly some land development projects in full-employment policy. In the first place, an expanded program of public production projects involves potential competition with private enterprise, which in turn conflicts with one of the basic principles of compensatory action, namely, that compensatory action should be taken in such a way as to give the greatest practicable encouragement to private enterprise.[44] For this reason public production projects offer only limited compensatory employment possibilities.

Second, difficulties of public acceptance may be encountered in a public service program, and to a lesser extent in

[39] Whiting and Woofter, *op. cit.*, p. 46.

[40] See my forthcoming paper on "The Employment-creating Capacity of Compensatory Public Works Programs, with Special Reference to the Experience of the United States."

[41] Cf. V. Webster Johnson and John F. Timmons, "Public Works on Private Property," *Journal of Farm Economics*, November, 1944.

[42] Work Projects Administration, *Final Report on the WPA Program, 1935-43*, p. 106, and *Report on Progress of the W.P.A. Program* (Washington, D.C., 1938), p. 94.

[43] Federal Emergency Relief Administration, *The Emergency Work Relief Programme of the F.E.R.A., April 1, 1934—July 1, 1935* (Washington, D.C., 1935), p. 56.

[44] Cf. the author's "Some Principles of Compensatory Action," *Quarterly Journal of Economics*, November, 1946, pp. 165–68.

some types of land development and public production projects, on the grounds that they do not add to the permanent capital of the country. Public construction has long been recognized as a state responsibility, but nonconstruction work activities are not so well recognized as public responsibilities. Furthermore, there is a widespread attitude that, to be productive, an expenditure must yield something tangible. Bricks and cement clearly represent productive efforts; tree seedlings and mattresses made by unemployed women from surplus cotton are evidences of worth-while effort, though of a marginal variety. On the other hand, public services such as recreational, health, or cultural services do not have physical embodiments. They are intangible, and the need for them varies with the degree of social development of a given population. If there is public hostility to these kinds of nonconstruction public works, then compensatory employment possibilities will be limited accordingly, no matter how well planned or ably staffed a program may be.

Third, it is not always certain that high levels of efficiency will be obtained in public service, public production, and possibly some types of land development projects. During the 1930's the Civil Works Administration, the Federal Emergency Relief Administration, and the Work Projects Administration encountered severe criticism for inefficiency. For the most part, however, the inefficiency was attributable to such factors as lack of advance planning, poor selection of projects, subsistence wage rates, inexperienced administrative personnel, lack of public acceptability, etc. —all of which could be largely eliminated in a well-executed program.

Fourth, the above types of public works may not be appropriate measures for dealing with slight recessions or with even a deep recession in its early stages. If unemployment does not rise much above, say, 3–5 per cent of the labor force, there may not be a sufficient geographical concentration of unemployment in particular types of occupations to justify the setting-up of local projects for the unemployed. Moreover, a compensatory public works program requires the creation of a new, or the expansion of an existing, administrative organization, which is not essential in inaugurating other types of compensatory programs, for example, taxation.

Nevertheless, in a well-organized and balanced full-employment program, there may be several stages at which increasingly powerful measures will need to be taken to stem the tide of deflation in case a serious depression is encountered. For example, if measures taken when unemployment reaches the first danger point, say, 3–5 per cent of the labor force, fail to stem a deflationary movement, then when the second signal point, say, 8–10 per cent, is reached, more drastic measures and the extension of existing measures will be called for if full employment is to be restored.[45] It is in some such setting as the above, therefore, that public works in their broad conception have a highly important role to play in automatic compensatory economic policy.

[45] Cf., e.g., the comments of the U.N. Group of Experts, *op. cit.*, pp. 40–41; Everett E. Hagen, "The Problem of Timing Fiscal Policy," *American Economic Review, Supplement*, May, 1948, pp. 420–25; Albert G. Hart, "Timing and Administrating Fiscal Policy; How To Give Relevant Counsel," *American Economic Review, Supplement*, May, 1948, pp. 435 ff.

THE CLASSICISTS' USE OF "DEMAND"[1]

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THE relative lack of attention given to demand by the more influential classical writers was not a consequence of general agreement on proper usage of the term. To be sure, the dominant writers agreed that "demand" meant the quantity demanded; but even within this group there was significant variation. Outside this group, other concepts were contending for supremacy. Indeed, the conflict between demand-and-supply and cost-of-production theories of value developed in part as a conflict between alternative demand usages.

CONCEPTS OF "DEMAND"

Since "demand" has meant many things to many people and often many things to the same person, it will be helpful to have some agreement on terminology. I shall use "demand" without modification to refer either to the term itself or, in a nonspecific manner, to the forces that operate on the buyers' side of a market. When "demand" is used as a quantitative statement of the strength of these forces, it takes on one of four classes of meanings: the quantity demanded; the demand price (these two are the elementary components); their product—the amount spent or to be spent on the commodity; or the demand schedule—the relationship between the demand price and the quantity demanded.[2] "Demand" in the sense of aggregate demand falls into the third class just mentioned—the amount spent or to be spent (on all commodities).

The classic statement of the difficulties involved in using "demand" in explaining the price of a particular commodity is John Stuart Mill's: ". . . if the thing is cheap, there is usually a demand for more of it than when it is dear. The demand, therefore, partly depends on the value. But it was before laid down, that the value depends on the demand. From this contradiction how shall we extricate ourselves?"[3]

Two solutions are in use today. The more common of them defines "demand" as a schedule and distinguishes between movements along the schedule and shifts in the schedule itself. The schedule states the price-quantity relationship. The fact that a larger quantity is demanded when the price is lower is shown by a movement along the schedule but is not termed a change in demand. Demand does not depend on value; value depends on demand. Consistent use of the con-

[1] I should like to express my appreciation to Professor F. S. Deibler, who first directed my attention to Malthus' "intensity of demand," and to Professors Earl J. Hamilton and Milton Friedman, who made many stimulating suggestions.

[2] Another classification will also be useful later on, the distinction between *ex post* and *ex ante* concepts of demand. The demand schedule is always defined as an *ex ante* concept—a list of the quantities that people would like to take (plan to take) if the price were to be each of the various alternative prices indicated. In the cases of the other three meanings of demand, an *ex post* concept is possible: the quantity actually taken, the price actually paid, the quantity of money actually spent. The most important such usage is by Ricardo, as we shall see.

[3] *Principles of Political Economy* (London: John W. Parker, 1848), I, 527.

cept of demand as a schedule prohibits speaking of a change in demand occurring in response to a change in the price of the commodity.[4] Demand is price-determining, never price-determined.

The less common solution is to define "demand" as the quantity demanded and to specify that this quantity is a function of the market price. This method is used principally by the mathematically minded, who are not likely to confuse a change in the function itself (the equivalent of a shift in the demand schedule) with a change in the quantity demanded in response to a change in the price.[5] There is no circularity in their solution, for the market price and the quantity actually exchanged are mutually determined as solutions of two simultaneous equations, the demand and supply functions.[6]

When "demand" refers to either the demand price, the quantity demanded, or the amount spent for a commodity, a "change in demand" may be the result either of a shift in the demand schedule or of a movement along the schedule. But a change in the demand schedule is specifically indicated if there is a change in the quantity demanded at a given price, in the demand price at a given quantity, or in the amount spent for the commodity at either a given price or a given quantity. It is conceivable that an author might consistently use demand as a schedule, yet never mention it, defining "demand," instead, as the quantity demanded at a given price.

The writers whom we shall survey as representatives of the dominant classical thought are Smith, Say, Ricardo, and, as a culmination, John Stuart Mill. In addition, we shall look at Lord Lauderdale and James Mill before turning to the other group: Malthus, Longfield, Macleod, and Senior.

ADAM SMITH

Adam Smith was the only major classical economist to use "demand" consistently as price-determining, not price-determined. As is well known, his value theory consisted of a theory of "natural price" (just sufficient to pay the rent of land, the wages of labor, and the profits of stock at their ordinary or average rates)[7] and a theory of market price. The demand for a particular commodity entered directly into his value theory only when the actual or market price was to be explained.

> The market price of every particular commodity is regulated by the proportion between the quantity which is actually brought to market, and the demand of those who are willing to pay the natural price of the commodity. . . . Such people may be called the effectual demanders, and their demand the effectual demand; since it may be sufficient to effectuate the bringing of the commodity to market. . . .
>
> When the quantity . . . brought to market falls short of the effectual demand, all . . . cannot be supplied with the quantity which they want. Rather than want it altogether, some of

[4] Perhaps complete consistency should not be required as evidence that a writer holds the schedule concept. Though Marshall defined an increase in demand as a shift of the schedule, he sometimes spoke of demand's changing in response to a change in price: "For instance, an unexpected and heavy tax upon printing would strike hard upon those engaged in the trade, for if they attempted to raise prices much, demand would fall off quickly" (Alfred Marshall, *Principles of Economics* [8th ed.; London: Macmillan, 1936], p. 414; cf. also p. 98 and, *re* supply, p. 534).

[5] For instance, John R. Hicks, *Value and Capital* (Oxford: Oxford University Press, 1938), p. 62.

[6] Those who use "demand" as a schedule have exactly the same solution for the exchange problem, but they attach the names "demand" and "supply" to the functions themselves rather than to the quantities demanded or supplied.

[7] *An Inquiry into the Nature and Causes of the Wealth of Nations* (New York: Random House, 1937), p. 55.

them will be willing to give more. A competition will immediately begin among them, and the market price will rise.[8]

In modern language Smith's concept of effectual demand was simply the quantity that would be taken at a specific price—the natural price—as can be seen from his practice of comparing the effectual demand with the quantity brought to market. Only quantities are comparable with quantities. Smith's effectual demand was actually that quantity point on the demand schedule which would be a long-run equilibrium point; that is, the natural rates of rent, wages, and profit could be paid from the actual or market price (here equal to the natural price).

Smith dismissed the problem of explaining the relation between market price and the willingness to buy a commodity quite casually. The higher prices that would be paid if there were a shortage of the commodity were attributed to "competition," which varied in strength according to the greatness of the deficiency, the importance of the commodity, and the "wealth and wanton luxury" of the competitors.[9] As there were some who would, if necessary, pay prices above the natural price, so there were some who would buy only at a price below the natural price.

A change in effectual demand must have appeared to Smith as a change in the quantity that people would be willing to take at the natural price rather than as a change in the natural price of a given quantity. The natural price was determined by the cost of production—the size of the "component parts" of price: wages, rent, and profit. The natural rates of the agents yielding these distributive shares were determined for the economy as a whole, not in the market for a single commodity. Hence the natural price could not reflect the demand for the specific commodity, certainly not so long as the quantity produced and the techniques of production were given.

On the assumption of continuity, a change in the quantity demanded at the natural price (a price "given" by the conditions of the economy as a whole) implies a shift in the demand schedule. Such a change in demand is price-determining, not price-determined. Smith's usage was essentially the same as the modern usage of demand as a schedule. Though he never presented the schedule concept explicitly, I have not found a single instance in which a change in demand is other than price-determining or in which demand may not be read as the quantity demanded at a given price.[10] However, he did not try to use his concept of demand to discuss the results of an alteration in the natural price; it would have been an awkward tool for that purpose.

JEAN-BAPTISTE SAY

Jean-Baptiste Say, who did use the concept of demand in analyzing the effects of changes in the natural price, modified Smith by substituting the current price for the natural price, as, in effect, did most classical writers. Thus demand came to mean simply the quantity taken, not necessarily at any given price.[11] Demand ceased to be a composite involving both price and quantity. Note, in the pyramid illustration that follows, that demand is represented by one di-

[8] *Ibid.*, p. 56.

[9] *Ibid.*, p. 56.

[10] For typical examples of his usage see *ibid.*, pp. 59, 60, 80, 116, 218–20, 227, 706.

[11] "The extent of demand . . . [is] the quantity of a good one is disposed to buy" (*Traité d'économie politique* [Paris: Déterville, 1803], II, 68; translations mine). For illustrations of demand changing with changes in the natural price see *ibid.*, pp. 70–71, 90–91, 95.

mension of the pyramid; price by the other: "The consumption of every good resembles a pyramid, of which the width represents the number of consumers or the extent of the demand, and the height the price. The higher the price, the less the width, that is, the demand."[12]

The "law of demand," that the lower the price, the larger the quantity that will be taken, was clearly stated here, substantially in the form of a demand schedule. But recognition that the law of demand exists, or even illustration of it in the form of a demand schedule, does not require that the term "demand" be used to refer to the schedule or that "changes in demand" be confined to price-determining changes.

Say's use of demand and supply in explaining price determination was essentially that of Hicks[13] today:

> Price is determined by the relationship between the quantity of a good that is offered for sale and the quantity people are disposed to buy. The more abundant the good in relation to the demand for it [the greater the excess supply], the more the price must fall; the greater the demand in relation to the supply [the greater the excess demand], the more the price must rise. . . .
>
> A change in the quantities offered and demanded does not change the price as long as the change is equal on both sides. It is the relationship[14] between the two quantities which determines the price; when the relationship is the same, the price remains the same.[15]

Say's usage remained the same throughout his later editions,[16] but his translator, Prinsep, evidently following Malthus,[17] introduced the concept of demand "intensity" into the English edition, although this distorted the sense of the argument.[18] The paragraph likening the consumption of a good to a pyramid was omitted after the first edition, but the same emphasis on the relation between price and quantity demanded is present.[19]

[12] *Ibid.*, p. 72.

[13] *Op. cit.*

[14] Here *rapport* has been translated by "relationship" rather than by "proportion," as in the English phrase that became so common, "the proportion between supply and demand." If *rapport* is read as "proportion," the passage cannot be taken literally. As John Stuart Mill remarked: ". . . the idea of a *ratio*, as between demand and supply, is out of place . . . the proper mathematical analogy is that of an *equation*" (*Principles of Political Economy* [from the 5th London ed.; New York: D. Appleton, 1865], I, 551). Perhaps Say was not very clear that *equality* between the quantity supplied and the quantity demanded was the price-determining condition, else he would have expressed it by something more specific than *rapport*.

[15] Say, *op. cit.*, p. 58. The brackets inclose less literal renditions of the preceding phrases.

[16] Cf. *Traité* (3d ed.; Paris: Déterville, 1817), II, 471; (4th ed.; Paris: Déterville, 1819), II, 10; *A Treatise on Political Economy*, trans. C. R. Prinsep (from the 4th French ed.; London: Longman, Hurst, Rees, Orme & Brown, 1821), II, 10, 42–43.

[17] Thomas Robert Malthus, *Principles of Political Economy Considered with a View to Their Practical Application* (1st ed.; London: J. Murray, 1820), p. 66.

[18] Say had written: "... la demande qui est faite d'un produit ... en embrasse une certaine quantité. La demande du sucre en France s'élève, dit-on, à plus de cinq cent mille quintaux par année. Même pour chaque individu, la demande qui est faite d'un certain produit en particulier peut être plus ou moins forte. Quelle qu'elle soit, appelons cette quantité la *quantité demandée*" (*Traité* [4th ed.; Paris: Déterville, 1819], II, 10).

"Enfin, quelles que soient les causes générales ou particulières qui déterminent la plus ou moins grande quantité de chaque chose qui est offerte ou demandée, c'est cette quantité qui, dans les échanges, influe fondamentalement sur les prix" (*ibid.*, p. 16; this and the preceding passage were omitted from the fifth [final] French edition).

Despite the explicit references to "quantity," Prinsep translated *forte* by "urgent" and the last sentence of the first passage as "whatever be its intensity, it may be called by the general name of demand." In the second passage he simply substituted "intensity" for *quantité* (Say, *A Treatise on Political Economy*, II, 9, 15). Cf. also *Treatise*, II, 42, with *Traité* (5th ed.; Paris: Rapilly, 1826), II, 184; *Treatise* (2d Amer. ed., from the 4th French ed.; Boston: Wells & Lilly, II, 1824), II, 32 n., with *Traité* (1817), II, 24.

[19] See Say, *Traité* (1826), II, 162–63, 165.

Say explained the fact that the quantity taken varied with price by the limitation of people's means,[20] but he did not forget the claims of other commodities. He was careful to point out that one's expenditure on a particular commodity was limited to the amount that was left after providing for other needs.[21] In the fifth edition he added the statement that each individual had to classify his wants in the order of importance. The higher the price, the more "products capable of giving a greater satisfaction for the same price are preferred."[22] As for individual demand, when the price rises, "the individual should be considered as two; one disposed to pay the price asked, the other withdrawing his demand."[23]

LORD LAUDERDALE

Lauderdale stressed the demand for a particular commodity more than did any of the other economists discussed here. He was less consistent than Say, but generally he used "demand" to mean the "quantity demanded."[24] Indeed, he often substituted the phrase the "extension of demand" for "an increase of demand."[25] His deviations from the use of "demand" as "quantity" include instances where "demand" means the amount spent for the commodity[26] and another where it means the price that buyers would pay.[27]

In explaining the relation between price and the quantity demanded, Lauderdale presented a rudimentary demand schedule, the quantities taken being unspecified but diminishing as higher and higher prices exclude more and more families from the market. It may be compared with Malthus' earlier example, which will be presented below, and with Say's "pyramid" illustration in his first edition:[28]

> Thus, the desire for sugar, which either taste or habit may have created, may, in some of these families, make them willing to deprive themselves of a portion of their other enjoyments, equal to the value of twenty shillings, rather than abridge their consumption of sugar. The desire of others for that article may be so great, that . . . they would sacrifice thirty shillings worth of their other enjoyments. And . . . there might exist . . . men willing to sacrifice forty shillings worth of their other enjoyments.[29]

In addition to this explanation of the market "law of demand" by differences in tastes, habits, and preferences, Lauderdale pointed out that individuals might follow a similar law. When confronted by an increase in the price, "some of the consumers of sugar, preferring the enjoyment of the other things to which they were habituated, might be . . . willing to retrench in that article, or perhaps to renounce the use of it altogether."[30]

It would be possible to derive a demand schedule from Lauderdale's illus-

[20] *Traité* (1803), II, 69–73; see also *Treatise* (1821), II, 9–12, and *Traité* (1826), II, 162–63.

[21] *Traité* (1803), II, 70.

[22] *Ibid.* (1826), II, 161–62.

[23] *Ibid.*, II, 164. This position dates back to the first edition (1803), II, 71.

[24] "If . . . the supply continuing at one thousand pounds weight, there should suddenly arise a demand for two thousand pounds weight . . . the demand would be double the quantity for which there existed a supply" (James Maitland, Eighth Earl of Lauderdale, *An Inquiry into the Nature and Origin of Public Wealth* [Edinburgh: Constable & Co., 1804], pp. 73–74; see also pp. 77–78). Demand was not necessarily measured at a given price, for he sometimes spoke of demand's changing in response to a price change (*ibid.*, pp. 65, 70, 289).

[25] *Ibid.*, pp. 75, 78, 95, 109.

[26] *Ibid.*, pp. 83–84, 85, 87–89, 104.

[27] *Ibid.*, pp. 20–21. The phrase "degree of demand" is here used as Malthus later used "intensity." See also p. 107.

[28] See above, p. 245, and below, pp. 249–50.

[29] Lauderdale, *op. cit.*, pp. 62–63.

[30] *Ibid.*, p. 63; see also pp. 65–66, 76, 78–79, 95–97.

trations of the effects of changes in grain production on the price of grain, following Gregory King and others. However, these relationships were not used to explain price determination but to relate changes in the quantity produced to the total expenditures on the commodity. Lauderdale's belief that the elasticity of the demand schedule was less than unity (to use present-day language) was of major importance for his policy conclusions. Because he believed "that the diminution of the quantity has the effect of raising the value for which the total of any commodity sells at the market; and the increase, the effect of diminishing it,"[31] he held that "it may be generally affirmed, that an increase of [private] riches, when arising from alterations in the quantity of commodities, is always a proof of an immediate diminution of [public] wealth."[32]

DAVID RICARDO

Ricardo joins Say and Lauderdale as one of the group whose dominant usage of demand was in the sense of the quantity demanded.[33] The Ricardian distinction was that he chose at times to use what was effectively an *ex post* concept; demand was the quantity actually taken from the market, not the quantity people would be willing to take: "The demand for a commodity cannot be said to increase if no additional quantity of it be purchased or consumed; and yet under such circumstances its money value may rise."[34]

Ricardo's primary concern with demand was to destroy the belief that price depended solely on demand and supply. The quantity actually taken could deviate from the quantity produced only temporarily. If the quantities demanded and supplied changed in the same proportion, as they would between two equilibrium positions, there would be no change in the "proportion of demand to supply." Hence this widely held explanation of price was useless. Of course, since the quantity actually taken, an *ex post* concept, is the result of both demand and supply forces, it cannot be very useful in explaining the effects of demand forces alone on price. It was this interpretation of "demand" by Ricardo that forced Malthus to make explicit his concept of the "intensity of demand."[35]

Ricardo was as varied in his usage as was Lauderdale. At times he used "effective demand" in the sense of Smith's "effectual demand,"[36] and at least twice he seems to have used "demand" in the sense of "demand price," though he usually avoided this.[37] He was aware of the

[31] *Ibid.*, p. 53. Lauderdale cited Gregory King, the *Spectator*, No. 200, and Sir John Dalrymple. Gregory King's estimate was made in 1696; the *Spectator* paper appeared in 1715 (D. R. MacGregor, "Marshall and His Book," *Economica*, IX [new ser.; 1942], 316).

[32] Lauderdale, *op. cit.*, p. 55.

[33] David Ricardo, *The Principles of Political Economy and Taxation* (3d ed.; London: J. M. Dent & Sons, 1911), pp. 199, 264; *On Protection to Agriculture* (4th ed.; London: John Murray, 1822), pp. 17–18. To be sure, most of his references to "demand" do not conclusively indicate the meaning he attached to the word (see *Principles*, pp. 8, 49–50, 175, 180–81, 193–98).

[34] *Principles*, p. 260. The same argument had appeared in his correspondence with Malthus in 1814 (Ricardo, *Letters of David Ricardo to Thomas Robert Malthus*, ed. James Bonar [Oxford: Clarendon Press, 1887], pp. 34–42).

[35] Ricardo occasionally used "demand" as an *ex ante* concept. Two references to supply increasing as a result of an increase in demand show that he sometimes thought of planned as well as of accomplished purchases (*Principles*, p. 262; *Letters of David Ricardo to Hutches Trower and Others, 1811–1823*, ed. James Bonar and Jacob H. Hollander [Oxford: Clarendon Press, 1899], p. 127; see also p. 126).

[36] *Letters to Trower*, pp. 126, 128.

[37] "High profits are the consequence of high price—high price of increased demand—increased

demand-price aspect of the demand relationship but not deeply interested in it; for attention to it interfered with concentration on the long-run, natural values of things. Similarly, he was fully conscious of the law of demand,[38] but the explanation of this phenomenon was of little interest to him.

THE MILLS

The dominance of quantity demanded as the meaning attached to "demand" in the classical period is attested by its adoption by John Stuart Mill:

> Meaning, by the word demand, the quantity demanded, and remembering that this . . . in general varies according to the value, let us suppose that the demand at some particular time exceeds the supply, that is, there are persons ready to buy, at the market value, a greater quantity than is offered for sale. Competition takes place on the side of the buyers, and the value rises . . . [to] the point, whatever it be, which equalizes the demand and the supply. . . .
>
> The proper mathematical analogy is that of an *equation*. Demand and supply, the quantity demanded and the quantity supplied, will be made equal . . . by an adjustment of value.[39]

This was the "true solution" to the paradox that value depended on demand, yet demand depended on value, said Mill, adding that it had previously been given by J.-B. Say.[40] This accords with our reading of Say. The identity between Mill's solution and that of John R. Hicks is even clearer than in the case of Say.

The younger Mill's explanation of the law of demand was rudimentary: "A rise of price . . . may place the article beyond the means, or beyond the inclinations, of purchasers to the full amount."[41] Although he was aware that a fall in value "induces those who were already consumers to make increased purchases,"[42] he did not inquire into the phenomenon.

James Mill, like some others, did not find it necessary to define the term "demand" in order to use it in explaining exchange value. Apparently it sometimes referred to the quantity demanded, for, having said that demand and supply determine the quantities of goods exchanged for one another, he went on to illustrate: "If a great quantity of corn comes to market to be exchanged for cloth, and only a small quantity of

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demand of an imperfect distribution of capital" (*ibid.*, p. 128). Since he was arguing that an imperfect distribution of capital would be self-correcting, he must have meant that a (relative) shortage of certain commodities would result in a (relatively) high demand price for them. Certainly, such an imperfect distribution of capital could not give rise to an increase in the demand schedule or the quantity demanded.

Again: if a superfine cloth were introduced in limited quantity, "the article would . . . be scarce and therefore in great demand" (*Letters to Malthus*, p. 4 n., quoting speech in Commons, 1822).

He usually avoided such usage by substituting such phrases as those italicized in the following passages: "Commodities which are monopolized . . . rise in proportion to the *eagerness of the buyers* to purchase them (*Principles*, p. 262; italics mine). "If corn rises in price, (though no greater quantity actually be taken) . . . , I should [attribute it to] *a greater competition* (*Letters to Malthus*, p. 42; italics mine).

[38] "The demand for corn . . . must necessarily be limited; and, although it . . . undoubtedly is, true, that when it is . . . cheap, the quantity consumed will be increased, yet it is equally certain, that its aggregate value will be diminished. This is true of all commodities, but of none can it be so certainly asserted as of corn" (*On Protection to Agriculture*, p. 18). See also the *Principles*, pp. 199, 264; *Letters to Trower*, pp. 128–32; *Letters to Malthus*, pp. 3–4 (n.), 5. In the latter (note on pp. 3–4) he stated that the aggregate value of a superfine cloth, newly introduced, would first rise and then fall as it grew in abundance.

[39] *Principles* (1848), pp. 528–30; see also *Principles* (from the 5th London ed.; New York: D. Appleton, 1865), I, 553, 559–60, 588; II, 105, 140, 143.

[40] *Ibid.* (1865), p. 549.

[41] *Ibid.*, p. 550.

[42] *Ibid.*, p. 551.

cloth to be exchanged for corn, a great quantity of corn will be given for a small quantity of cloth."[43] But the term also carried an implication of willingness to pay for a good: "Demand creates, and the loss of demand annihilates, supply. When an increased demand arises . . . an increase of supply . . . follows."[44]

Clarification of the concept became important when he set about to develop the proposition "That Consumption Is Co-extensive with Production."[45] At that point he defined demand as "the will to purchase, and the means of purchasing,"[46] whence he argued that "the equivalent which a man brings is the instrument of demand. The extent of his demand is measured by the extent of his equivalent. . . . The equivalent may be called the demand, and the demand the equivalent. . . . [His] demand, is exactly equal to the amount of what he has produced and does not mean to consume."[47]

From this last definition of demand it followed immediately that demand and supply were always equal and that no general glut was possible.

T. R. MALTHUS

It was Malthus among the classical economists who deliberately chose to measure demand by the demand price rather than by the quantity demanded. However, his first contribution to demand analysis was an approximation to a modern demand schedule, in his second published work, *An Investigation of the Cause of the Present High Price of Provisions.*[48] High corn prices following a short harvest had continued past the next harvest,[49] remaining higher than he thought the degree of scarcity warranted. On a trip through recently famine-stricken areas in Sweden, he had found no evidence of such large price increases as in England, though the dearth had been much worse. The usual explanations —monopoly, speculation, or the increased circulation of bank notes— seemed inadequate. The principal cause, he wrote, was rather the practice of increasing parish allowances in proportion to the rise in corn prices.

> When any commodity is scarce, its natural price is necessarily forgotten, and its actual price is regulated by the excess of the demand above the supply.
>
> Let us suppose a commodity in great request by fifty people, but of which, from some failure in its production, there is only sufficient to supply forty. If the fortieth man from the top have two shillings which he can spend in this commodity, and the thirty-nine above him, more, in various proportions, and the ten below, all less, the actual price of the article, according to the genuine principles of trade, will be two shillings. If more be asked, the whole will not be sold, because there are only forty who have as much as two shillings to spend in the article; and there is no reason for asking less, because the whole may be disposed of at that sum.
>
> Let us suppose, now, that somebody gives the ten poor men, who were excluded, a shilling a-piece. The whole fifty can now offer two shillings, the price which was before asked. According to every genuine principle of fair trading, the commodity must immediately rise. If it do not I would ask, upon what principle are ten, out of the fifty who are all able

[43] *Elements of Political Economy* (London: Baldwin, Cradock & Joy, 1821), p. 66. Malthus spoke of Mill defining demand as the quantity consumed (Malthus, *Definitions in Political Economy* [London: John Murray, 1827], pp. 47–48).

[44] James Mill, *op. cit.*, p. 67.

[45] *Ibid.*, p. 186.

[46] *Ibid.*, p. 188.

[47] *Ibid.*, pp. 188–89.

[48] London: J. Johnson, 1800. Reprinted in Harry G. Johnson, "Malthus on the High Price of Provisions," *Canadian Journal of Economics and Political Science*, XV (1949), 190–202.

[49] In June, 1800, the price of wheat was 134*s.* 5*d.* per quarter, compared with an average price for the year 1794 of 52*s.* 3*d.* The price in the latter year was but little below the high points of the preceding twenty years (Gilbert Slater, *The Growth of Modern England* [Boston: Houghton Mifflin Co., 1933], p. 214, and Diagram I, Appendix).

to offer two shillings, to be rejected? For still, according to the supposition, there is only enough for forty . . . according to every acknowledged principle of commercial dealing, the price must be allowed to rise to that point which will put it beyond the power of ten out of the fifty to purchase. This point will, perhaps, be half-a-crown or more, which will now become the price of the commodity. Let another shilling a-piece be given to the excluded ten: all will now be able to offer half-a-crown. The price must in consequence immediately rise to three shillings or more, and so on *toties quoties*.

The rise in the price of corn, and of other provisions, in this country, has been effected exactly in the same manner . . . and I am firmly convinced, that it never could have reached its present height, but from the system of poor laws and parish allowances, which have operated precisely in the same mode as the donatives of a shilling in the instance I have just adduced.[50]

The technical apparatus used in this argument—an array of the fifty persons' demand prices, each person taking one unit of the good—is clearly a rudimentary market demand schedule, the equivalent of that in Böhm-Bawerk's horse-market example.[51] Each gift of a shilling to each of the excluded participants raises each man's demand price and thus the price of the given quantity of the good. In modern language the part of the schedule that is affected shifts upward (to the right). The shift upward, incidentally, is apparently (correctly) expected to be somewhat less than a shilling at a quantity of forty, for the new prices are assumed to rise by half a shilling "or more" with each increase of one shilling in each man's wealth. This device enabled Malthus to show that, as long as the parish allowances were increased whenever the price of corn rose, every increase in price resulted in an increase of the incomes of the poor, an increase in the market demand schedule at its lower end, and a further rise in price.[52]

Twenty years later, in order to defend the proposition that prices are determined by the proportion between the demand and the supply, Malthus presented his concept of the intensity of demand:

It has been sometimes said that supply is always equal to demand, because no permanent supply of any commodity can take place for which there is not a demand so effective as to take off all that is offered. In one sense of the terms in which demand and supply have been used, this position may be granted. The actual *extent* of the demand compared with the actual *extent* of the supply are always on an average proportioned to each other. . . . It cannot, therefore, be in this sense that a change in the proportion of demand to supply affects prices. . . .

The demand for a commodity has been defined to be, the will combined with the power to purchase it.

The greater is the degree of this will and power with regard to any particular commodity, the greater or more intense may be fairly said to be the demand for it. But . . . as long as . . . sellers . . . bring the quantity wanted to market at a low price, the real intensity of the demand will not show itself.

In fact it may be said, that the giving a greater price for a commodity absolutely and necessarily implies a greater intensity of demand.[53]

[50] *Investigation of the . . . High Price of Provisions* (reprinted in Johnson, *op. cit.*), pp. 194–95 (in the original, pp. 5–7).

[51] Eugen von Böhm-Bawerk, *The Positive Theory of Capital* (New York: G. E. Stechert, 1930), p. 203.

[52] Malthus had used the same general argument, but without the device of the array of demanders, in *An Essay on the Principle of Population*, ed. James Bonar (London: Macmillan & Co., 1926; reprint of 1798 ed.), pp. 74–83. Nor was the array used in the second edition of the *Essay* ([London: J. Johnson, 1803], pp. 396–402). Despite his general disapproval of the poor laws, under the special conditions that gave rise to the *Investigation*, he commended them for the humanitarian reasons that they led to high prices of necessaries, forced "strict economy in all ranks of life," and caused the distress to be shared among larger numbers of people, among other reasons (*Investigation*, pp. 18–20).

[53] Malthus, *Principles* (1820), pp. 65–66.

Here, before James Mill, we have a reinterpretation of the common phrase "the will and power to purchase" to make it mean the "intensity of demand," measured by the demand price. No other economist had based his value theory on such a conception of demand, nor had any other economist recognized explicitly that "demand" might have two measures, extent and intensity. It was demand in the sense of intensity that affected prices, he insisted:

> It is evidently, therefore, not merely the extent of actual demand, nor even the extent of actual demand compared with the extent of the actual supply, which raises prices, but such a change in the relation between demand and supply, as renders necessary the expression of a greater intensity of demand.[54]

What were these changes that rendered necessary the expression of a greater intensity of demand? The causes that raise the price of a commodity[55]

> are an increase in the number or wants of its purchasers, or a deficiency in its supply; and the causes which lower the price are a diminution in the number or wants of its purchasers, or an increased abundance in its supply.
>
> The first class of these causes is obviously calculated to call forth the expression of a greater intensity of demand, and the other of a less.[56]

An increased intensity resulting from an increase in the number, wants, or means of the purchasers is the result of a shift of the demand schedule; an increased intensity resulting from a deficiency in the supply simply represents a movement along a given demand schedule. Malthus' intensity is incapable of distinguishing price-determining from price-determined changes in demand.[57]

Probably because it applied to both cases, he could not decide whether the intensity of demand was some latent force, to be called forth as needed, or whether it was simply a quantity susceptible of increase or decrease.[58]

Despite the fact that Malthus' concept of the intensity of demand was unique among the major writers, he insisted that he had not given the term a new meaning but had simply explained the meaning that had always been attached to it when demand was said to raise prices.[59] To be sure, an increase in price did imply an increase in the intensity of demand and in its measure, the demand price; but no other major economist seems to have consciously thought of it in this way.[60] Malthus' use of the

[54] *Principles* (1820), p. 70; see also *Definitions in Political Economy* (London: John Murray, 1827), pp. 44–45.

[55] Evidently following Lauderdale, *op. cit.*, p. 13.

[56] *Principles* (1820), pp. 66–67. Changes in the means of demanders were added to the list in the second edition ([London: William Pickering, 1836], p. 64).

[57] *Ibid.* (1820), pp. 67–70. Malthus showed awareness of the distinctive character of a shift in the schedule in his second edition: "Of course it must often happen that an increased intensity of demand, and an increased extent of demand go together. In fact, an increased intensity of demand, when not occasioned by an increased difficulty of production, is the greatest encouragement to an increase of produce and consumption" (*ibid.* [1836], p. 69 n.).

[58] He used both forms of expression: "call forth" on pp. 66, 67, and 70 of the first edition of the *Principles*, for instance, with "increase" also appearing on p. 67. In the second edition he revised the passage on p. 66 to read "increase" (p. 63), and revised the "increase" on p. 67 to read "exist in such a degree" (p. 64).

[59] *Ibid.* (1820), pp. 71–72. Cf. J. S. Mill's argument that Ricardo meant that profits depend on the cost of labor, though he actually said "wages" (J. S. Mill, *Principles* [1865], p. 512).

[60] Malthus sometimes used "demand" in still other senses. In his earlier writings, of course, he had not clearly formulated his ideas. He once used "effective demand" in the sense of Smith's "effectual demand" when discussing the demand for particular commodities (*Principles* [1820], p. 68); in the *Principles* (1836) the word became "effectual" (p. 65). Beginning in 1824, he sometimes used the total amount spent for a quantity of a commodity as the measure of demand: Value was as "the quantity of service offered divided by the quantity of produce received" ("Essay on Political Economy," *Quarterly Review*, XXX [1824], 318; see also *Definitions*, pp. 247, 258; "Transcript of the Questions on Adam Smith's Wealth of Nations . . ."

intensity of demand enabled him to show that demand considerations were important, even though the quantity taken did not change and even in those cases in which the change in the schedule sense was on the supply side of the market. Thus he was able to defend demand and supply as the determinants of price and to support his general thesis that demand played an active role in determining the prices of particular commodities and of commodities in general.

To be sure, Malthus' resort to the intensity of demand owed its validity not so much to any analytical superiority of intensity, as such, over the quantity-demanded concept as to the fact that his intensity was an *ex ante* concept in contrast with Ricardo's (and his) *ex post* usage of "extent."[61] Say's *ex ante* use of "quantity demanded" was as successful a defense of demand and supply theorizing as was Malthus' *ex ante* use of "intensity."

Having established the concepts of intensity and extent, Malthus was satisfied. He was too practical a person to go deeper than changes in the number, wants, or means of "purchasers" or deficiency or increased abundance in the supply as an explanation of "the causes which either call forth or render unnecessary the expression of the intensity of demand."[62] He emphasized the subjective side of demand in certain respects (intensity is a subjective concept), but he had no interest in analyzing what lay behind the intensity of demand. He stressed the importance of commodities being suited to the tastes of consumers if effective demand were to be maintained,[63] and he insisted that there was a subjective gain from trade[64] and a subjective estimate of the significance of a commodity.[65] At the same time, he cursorily dismissed value in use as a seldom-used concept[66] and argued that "the man who has two pairs of stockings of the same quality instead of one . . . possesses . . . a double portion of the conveniences of life,"[67] though only two pages later he said: "The most useful commodity . . . if it be absolutely in excess, not only loses its exchangeable value, but its power of supplying the wants of society to the extent of its quantity, and part of it therefore loses its quality of wealth."[68]

His lack of analysis of the subjective aspects of demand is not too surprising, when we consider that his propositions about the intensity of demand increasing as the quantity decreased were never explicitly applied to the *individual*. One gets the impression that Malthus thought of the individual as buying either his usual amount or none at all.

[original manuscript in Marshall Library of Economics, Cambridge, England], p. 10; *Principles* [1836], pp. 66 n., 67–68).

[61] On the *ex post* character of Malthus' use of "extent" see the quotation on p. 250 above. The distinction between *ex ante* and *ex post* concepts is not so new as we may think. Compare Malthus' footnote in his second edition: "Sir Edward West seems to think that a demand *in posse* cannot be called demand; but it does not appear to me that there is any impropriety in so applying the term; and it is quite certain that if there were not a greater intensity of demand *in posse* than *in esse*, no failure of supply could raise prices. In reality prices are determined by the demand *in posse* compared with the supply *in esse*" (p. 64).

[62] *Principles* (1820), pp. 66–67; (1836), p. 64.

[63] *Principles* (1836), pp. 301–3.

[64] "Publications on the Depreciation of Paper Currency," *Edinburgh Review*, XVII (1811), 356–57 n.

[65] *Principles* (1820), p. 53; *Definitions*, p. 251.

[66] *Principles* (1820), pp. 51–52.

[67] *Ibid.*, p. 338. In the second edition Malthus remarked that some writers had denied that doubling the quantity doubles the satisfaction, but he maintained his position (p. 300).

[68] *Ibid.*, p. 340.

Malthus was uninterested in the price-quantity relationship for the individual, though he could hardly have been unaware of it. He remarked in the *Investigation of the High Price of Provisions* that high prices led to "strict economy in all ranks of life"[69] and, in the *Essay on Population*, that "the price of corn in a scarcity, will depend much more upon the obstinacy with which the same degree of consumption is persevered in, than on the degree of the actual deficiency."[70] For the problem of the *Investigation* the limitation upon the demand price imposed by the buyers' incomes was the point at issue; he pursued the problem no further. Similarly, in the *Principles*, for the purpose of maintaining his position regarding the intensity of demand for the whole market, it was necessary only to note that the individual might express a greater intensity if necessary in order to obtain the quantity to which he was accustomed; Malthus did not explicitly consider the case of the individual who adjusted the quantity of his consumption in accordance with the price.[71]

[69] Reprinted in Johnson, *op. cit.*, p. 200.

[70] *Essay on Population* (1803), pp. 399–400.

[71] Hla Myint is warranted, with respect to the individual demand schedule, in saying that Malthus "has failed . . . to understand the equilibrium mechanism which adjusts the 'intensity' of demand to price *at the margin* by a simultaneous adjustment of the 'extent' of demand to the given supply" (*Theories of Welfare Economics* [Cambridge: Harvard University Press, 1948], p. 37). I think he errs in applying this observation also to market situations. Malthus thought that for the whole market the normal situation was one in which the extent and the intensity of demand varied together (not necessarily *increased* together). He chose to discuss the limiting cases (horizontal or vertical demand schedules) because he wanted to show that his concept was useful even at the extremes (*Principles* [1820], pp. 67–70). Hla Myint's view that Malthus built his analysis on contradictory assumptions regarding the shape of the demand curve is not convincing (Myint, *op. cit.*, pp. 36–38, 64).

"OBSERVATIONS ON CERTAIN VERBAL DISPUTES"

The anonymous author of *Observations on Certain Verbal Disputes in Political Economy*[72] possessed a sense of the distinction between the price-determined and the price-determining that was unusually strong for his time: "The increase of the intensity of demand must mean (for Mr. Malthus's definition is not exact enough to help us) the existence of a disposition to give more for the quantity actually taken, or to buy more at the same rate."[73] By thus limiting the meaning of the phrase "increase of intensity" to the shift of the schedule, he was able to argue that price increases could occur without corresponding increases in the intensity of demand. Each person might buy half as much at an increased price, though no one would buy his former amount at the old price, he continued, for "half the quantity we use of any article is generally *more* than half as intrinsically desirable, on the whole."[74]

He continued his attack on Malthus' usage with a reference to the case in which a fall in price as the result of a contingent increase of supply was associated with a fall in the intensity of demand: "If the degree of demand can itself be altered by the degree of supply, what information is given us by saying, that something depends on the balance of forces (as it were) between the two?"[75] It is undoubtedly true that the prevalent use of demand in a nonschedule sense,

[72] London: R. Hunter, 1821.

[73] *Ibid.*, p. 65.

[74] *Ibid.* This is one of the earlier statements of diminishing marginal utility, though the "margin" is rather large. Perhaps this is the writer who elicited Malthus' comment given in n. 67 above.

[75] *Ibid.*, pp. 65–66. The reference to Malthus is to *Principles* (1820), p. 69. I have omitted a footnote reference to Say after the word "forces" in the quotation.

by permitting confusion between price-determining and price-determined changes in demand, contributed to the widespread preference for a cost-of-production explanation of price in the classical period.

MOUNTIFORT LONGFIELD

Longfield, like Malthus, recognized both extent and intensity as aspects of demand. Moreover, Longfield was able to utilize both, for he was not under the same compulsion to refute the Ricardian position on demand. Longfield's definition of demand places him in the demand-price group: "the disposition to give something in exchange . . . may be called the demand."[76] This did not prevent him from making extensive use of a modified version of Adam Smith's effectual demand:

> [If] more persons are willing to purchase . . . than the quantity on sale can supply . . . the competition among the buyers will raise the article to such a price that the supply will become equal to the effective demand—that is, the demand of those who are willing to give for it the increased price to which it is raised. This equality is . . . produced . . . by a diminution of the effective demand consequent upon an increase of price.[77]

So far, the only departure from Adam Smith's argument has been to make "effective demand" simply the quantity taken, not requiring that it be the quantity taken at the natural price, as Smith did for his "effectual demand." This change makes the analysis substantially the same as that of Say,[78] but Longfield at a later point developed the demand-price aspect, which he must have obtained from Malthus:[79]

> The measure of the intensity of any person's demand for any commodity is the amount which he would be willing and able to give for it, rather than remain without it. . . . [The] high prices to which provisions rise in time of scarcity, prove the existence of a latent intensity of demand . . . : the intense demand always exists, though it may not be apparent. . . . [The] market price is measured by the demand, which being of the least intensity, yet leads to actual purchases. If the existing supply is more than sufficient to satisfy all the demand equal to or superior to a certain degree of intensity, prices will fall, to accommodate themselves to a less intense demand. . . . [Each] individual contains as it were within himself, a series of demands of successively increasing degrees of intensity . . . the lowest degree of this series which at any time leads to a purchase, is exactly the same for both rich and poor, and is that which regulates the market price.[80]

The analysis is unusually clear. The intensity of demand is measured by the demand price; a different quantity corresponds to each intensity of demand.[81] Moreover, the notion of marginal demand was present: "Now if the price is attempted to be raised . . . the demanders, who by the change will cease to be purchasers, must be those the intensity of whose demand was precisely measured by the former price. . . ."[82] Now that portion which any person ceases to consume in consequence of a rise in prices . . . is that for which the in-

[76] Mountifort Longfield, *Lectures on Political Economy* (delivered in 1833) (London: London School of Economics, 1931; reprint of 1834 ed., Dublin: R. Milliken & Son), p. 45.

[77] *Ibid.*, pp. 47–48; see also pp. 46–47, 49, 111.

[78] Cf. Say, *A Treatise on Political Economy*, I, 3–5, and II, 8, with Longfield, *op. cit.*, pp. 27, 47–48.

[79] He cited Malthus on rent (Longfield, *op. cit.*, p. 148), but not in connection with demand analysis. However, Longfield's theory is a development of the intensity of demand, and no writer but Malthus had that concept. Although the English translation of Say's *Traité* refers to intensity, the translator must have adopted the term from Malthus, for it does not appear in the French (see p. 245, above).

[80] Longfield, *op. cit.*, pp. 111–15.

[81] The word "demand" here, when unmodified by "intensity," seems to mean simply the quantity demanded, as in the passage previously quoted.

[82] Longfield, *op. cit.*, p. 113.

tensity of his demand is less than the high price which prevents him from purchasing it. . . ."[83] However, Longfield did not attempt a subjective explanation of the relation between the intensity of demand and the demand (quantity) for the individual.

But Longfield's influence was limited.[84] Theoretical discussions apart from practical problems attracted few,[85] and Francis Horner was probably not the only Englishman who scorned the "rabble of Irish economists."[86]

H. D. MACLEOD

Aside from James Mill, the principal exponent of the amount spent on a commodity as the measure of demand was Macleod. His usage began as the quantity of a particular commodity sold, but it eventually became the quantity of the other commodity given in exchange for that particular commodity. In 1858 he defined demand as the quantity sold[87] and held that "the relation between demand and supply is the sole regulator of value";[88] but his explanation of price utilized a different aspect of demand: "The very same thing may be of far more use at one time than at another, and . . . we may call it a service of greater or lesser intensity."[89] A crust of bread would be a service of great intensity to a starving man.[90] "*Price varies directly as the intensity of the service rendered, and inversely as the power of the seller over the buyer.*"[91]

The concept of the intensity of the service rendered may have been suggested by Malthus' "intensity of demand."[92] A little later Macleod used Malthus' phrase[93] and maintained that "the more intense the desire and the greater the power to purchase, the greater is the Demand."[94] Indeed, "no other Causes influence Value or changes of Value, except Intensity of Demand and Limitation of Supply."[95] He had shifted to the demand-price concept. Although his former concept—the quantity sold—was identical with consumption in Macleod's sense of "purchase,"[96] he now held that demand was not the same as consumption; if the rich crowd into a country town and give higher prices than the poor can, there has been an increase in demand.[97]

However, in the *Elements of Economics* Macleod went further and provided the extreme variant of the demand-

[83] *Ibid.*, p. 114.

[84] Cf. R. D. Black, "Trinity College, Dublin, and the Theory of Value, 1823–63," *Economica*, XII (new ser.; 1945), 140–48.

[85] Edwin R. A. Seligman, "On Some Neglected British Economists," *Economic Journal*, XIII (1903), 534–35.

[86] Leonard Horner (ed.), *Memoirs and Correspondence of Francis Horner* (Boston: Little, Brown, 1853).

[87] Henry Dunning Macleod, *The Elements of Political Economy* (London: Longman, Brown, Green, Longmans & Roberts, 1858), p. 86.

[88] *Ibid.*, p. 111.

[89] *Ibid.*, p. 98.

[90] *Ibid.*, pp. 98–99.

[91] *Ibid.*, p. 100 (italics in the original). The importance of the power of the seller over the buyer was illustrated by the case of a drowning man. To him the intensity of the service rendered by a boatman would be the same whether one or two boatmen were available, but the price would be less if there were two (*ibid.*, pp. 99–100).

[92] That Macleod knew Malthus' *Principles* is attested by his lengthy quotation of Malthus' defense of supply and demand (*The Elements of Economics*, II [1886], Part I, 15–17, quoting *Principles* [1820], pp. 71–73).

[93] *The Theory and Practice of Banking* (3d ed.; London: Longmans, Green, Reader & Dyer, 1875), I, 95: "It is the intensity of Demand which confers such enormous Value on the ground in the heart of London."

[94] *Ibid.*, p. 63.

[95] *The Elements of Economics* (New York: D. Appleton, 1881), I, 259.

[96] *Ibid.*, I, 200.

[97] *The Theory and Practice of Banking*, I, 63.

price usage of the term "demand": "Demand means the Desire and the Power to purchase anything: and so may be used to mean the Quantity of anything which is given in exchange for anything else."[98] He was eager to measure demand (comprising both desire and power) by its manifestation in an act of exchange. Hence he adopted James Mill's suggestion that the quantity of money or anything else given in exchange for a commodity should be called the "demand" for it.[99] He did not explicitly distinguish between the quantity given for a single unit of another commodity (the price or demand price of that commodity) and the quantity given for the whole number of units of that commodity, but he used the term in the latter, inclusive, sense: "Thus each Quantity offered is the Supply of that article, and the Demand is the Value of the other. . . ."[100] In this latter instance Macleod's use of demand as the *value* rather than the *quantity* of the other commodity exchanged involves us in circularity except when we may refer to money, or the *numéraire*, for which the quantity and the value are identical by definition. But Macleod generally referred to demand as the *quantity* of the other commodity given in exchange.[101]

NASSAU SENIOR

Still another meaning of demand was contributed by Senior. If we are to believe his words, his concept was entirely subjective, omitting any requirement of a means of payment, and not in a quantified form. Neither Malthus' two kinds of demand (the quantity purchased and the sacrifice that demanders were willing and able to make) nor Mill's will and power of purchasing conformed to common usage, Senior complained. His own usage would be "as expressing the utility of a commodity; or, what is the same—for we have seen that all utility is relative—the degree in which its possession is desired."[102] The usual meaning of an increase in demand, he added, was an increase in the desire to obtain commodities or their utilities.[103] His illustration had been used in his first Oxford period:

> It must be admitted that the word demand is used in its ordinary sense when we say that a deficient wheat harvest increases the demand for oats and barley. But this proposition is not true in any other sense than as expressing the increased utility of oats and barley; or, in other words, the increased desire of the community to obtain them. The deficiency of wheat would not give to the consumers of oats and barley any increased power of purchasing them, nor would the quantity purchased or consumed be increased. . . . The mode of consumption would be altered . . . the pleasure given or the pain averted by the possession of a given quantity of them (or, in other words, the *utility* of a given quantity of them), would increase.[104]

An increase in demand, in this usage, was clearly price-determining.[105] While this might have been a useful development, his refusal to include the willingness to part with something in exchange as a part of the definition of demand made the term the equivalent of "de-

[98] *The Elements of Economics*, I, 221.

[99] *Ibid.*, pp. 202–3. The reference is evidently to James Mill, *op. cit.*, pp. 188–89.

[100] *The Elements of Economics*, I, 203.

[101] *Ibid.*, pp. 202–3, 221, 225.

[102] Nassau William Senior, *Political Economy* (6th ed.; London: Charles Griffin, 1872), pp. 15–16.

[103] *Ibid.*, p. 15.

[104] *Industrial Efficiency and Social Economy*, ed. S. Leon Levy (New York: Henry Holt & Co., 1928), II, 25, quoting *First Course of Lectures at Oxford, Old Series* (1826–27), pp. 128–31.

[105] However, he sometimes used "demand" in the sense of "quantity taken" (see *Industrial Efficiency*, II, 23, quoting Lecture 7, *Fourth Course of Lectures at Oxford, New Series* [1850–51], pp. 58–63, and p. 239, quoting Lecture 6, *Fifth Course of Lectures at Oxford, New Series* [1851], pp. 7–9).

sire."[106] With no way at hand of expressing desire in quantitative terms, his concept was not very useful. This was no particular burden to him, for he rarely resorted to its use; cost of production was the active force in his theory of value. His definition had the advantage of turning attention toward the subjective aspect and thus was consistent with his statement of the law of variety and of diminishing utility.

CONCLUSIONS

Such diversity of usage as prevailed in the classical period is undoubtedly partially the result of the lack of importance placed on demand as a determinant of value. That controversy continued over this part of their system evidences a lack of complete understanding of the relationships of the various concepts to one another. The classicists' use of "demand" in explaining price changes often relied more on an intuitive or common-sense grasp of the situation than on a precisely stated concept of demand and a strictly logical use of that concept. Either the demand-quantity or the demand-price concept could have been used successfully to explain price determination (as in the quantity-demanded versions of Say and J. S. Mill or the intensity-of-demand version of Longfield. Nor were the two usages mutually exclusive, though Longfield seems to have been the only writer who elaborated both.

But not until Marshall's adoption of the schedule usage did the relationships among these various concepts become generally clear in English economics. The literary economist of today who uses "demand" as the quantity demanded does so with greater success because familiarity with the concept of demand as the schedule has made him sensitive to the distinction between shifts of the schedule and movements along it.

Only two of the classical economists studied here identified an increase in demand with a shift of the schedule—the anonymous author of *Observations on Certain Verbal Disputes* and Adam Smith. The others usually meant by "demand" simply the quantity demanded; but, whether the demand-quantity or the demand-price concept was used, changes in demand were as likely to be price-determined as they were to be price-determining. Hicks's usage is in the classical tradition; the Marshallian use of the schedule is not.

Yet all the classical writers were fully aware of the existence of the law of demand—that more would be taken at lower prices. Several of them (Malthus, Say, Lauderdale, and Longfield, in that order) presented particularly clear illustrations of it that amounted to demand schedules. Of course, recognizing the existence of the schedule relationship does not require one to identify the term "demand" with the schedule and thus limit the meaning of "change in demand" to a price-determining shift of the schedule.

[106] In his later Oxford period he was explicit: "The word *demand* is sometimes used to express desirableness—as when it is said that commodities are valuable directly according to the demand for them, and inversely according to the supply of them. Used in this sense the word demand is a convenient term, and I shall so employ it. And in the future I shall substitute for the word desirableness—the word *utility* . . ." (*Industrial Efficiency*, II, 5, quoting Lecture 6, *Fourth Course of Lectures at Oxford, New Series* [1850–51], pp. 6–16).

KEYNESIANISM AND INFLATION

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I

PRIOR to the Great Depression major changes in the value of money were explained as a monetary phenomenon arising from natural factors affecting the supply of the precious metals or institutional factors affecting the quantity of money and credit. The latter were generally assumed to be subject to control by governmental authorities. Recently, however, peacetime inflation, during recovery or even after full employment has been reached, has been attributed to labor unions or business organizations which by their wage and price policies affect the level of national income and expenditure.[1] This change in interpretation, although partly a consequent of the growing power of organized groups, is primarily due to the acceptance of the neo-Keynesian philosophy that full employment can be maintained by appropriate monetary and fiscal policies and that, if inflation ensues, the fault must lie not with these policies but with labor and business. The paramount question remains, therefore, whether it is the Keynesian analysis and remedies or the present structure of economic society which is to blame.

At present, the accepted doctrine seems to be that the Keynesian analysis and prescription are correct but that business and labor must be reformed. Only after this is done will Keynesianism work satisfactorily. This I believe to be wrong, and I have so indicated in my recent article on the relation of trade-unions to inflation.[2] Two comments[3] on this article further reinforce my conviction that the broader and more basic issue is not trade-unionism and inflation but whether Keynesian policies are consistent with price stability in any free economic system. This issue is of such transcending importance for economic policy and social philosophy that it merits further exploration.

My recent article asked: Have trade-unions and other groups caused the postwar inflation, and will they cause inflation in the future? Or is the level of prices something which must be controlled by the monetary authority? My view was that unions had not and will not cause inflation which is subject to control by monetary and fiscal authorities. My critics differ with these conclusions. Professor Bronfenbrenner does not attribute the postwar inflation in any large measure to organized labor, but he goes on to predict that pressure groups, including unions, will impair the value of money in the future. Professor Lapkin, on the other hand, is still far behind Bronfenbrenner in this respect, believing that "unions exerted a decidedly inflationary effect" during the postwar years. As we shall see, however, most of his argument confuses the effect of wages on prices with the effect of trade-unions on prices. He seems to think these are one and the same. Because of his failure to make this elemental distinction, Lapkin's arguments are almost entirely lacking in cogency.

II

Prior to the recent popularity of the income theory of prices, monetary theory

[1] Some theorists characterize the first explanation as the quantity theory and the latter as the income theory of prices, a dichotomy, however, which rests upon a false foundation and leads to errors of analysis and policy (see Walter A. Morton, "Trade Unionism, Full Employment, and Inflation," *American Economic Review*, XL [1950], 15 n.).

[2] *Ibid.*, pp. 13–39.

[3] Martin Bronfenbrenner and David T. Lapkin, *American Economic Review*, XL (1950), 622–25.

sought to distinguish between the basic causes of general price movements and price-making actions such as consumption, savings, and investment. Of course, we could say, and some still do, that all who buy and sell "caused" prices to rise and then blame unions, profiteers, and farmers for inflation. This confuses a process with a cause. Since, moreover, economists expect those engaged in the economic process to maximize monetary gains under whatever monetary conditions that may exist, we regard as the "cause" of inflation not the maximizing conduct but the limiting monetary and economic factors determining this behavior. When I, therefore, deny the responsibility of unionism for the recent inflation, I do not mean that union members did not ask for, receive, and spend higher wages and thus help raise prices. Indeed, I showed that they did just that. What I contend is that the existence of organized labor was not the basic cause of inflation, which would have come about as it has in previous inflationary periods, even if wages had been determined competitively instead of by collective action. What, therefore, those who attribute the price rise to unionism must show is not that unions bargained for and won higher wages which had certain inflationary consequences but that neither the higher level of wages nor their inflationary impact would have ensued in a competitive labor market.

The basic cause of postwar inflation was the release of idle cash balances created by the war, which operated through the mechanism of the income-expenditure-price spiral, often erroneously designated as merely a wage-price spiral. It is misleading to identify this spiral with unionism and to forget that this spiral has existed, and will continue to exist, under appropriate monetary conditions, whether monopoly or competition prevails in the economy. Lapkin's comments, intended to correct me on this score, are spoiled throughout by this erroneous identification. He appears to think that, if he can show inflation to be caused, aided, or abetted by the wage-price spiral in a unionized labor market, then he has demonstrated that unions cause inflation, thus implicitly positing that wages would not have risen in a competitive labor market. Using the same method of reasoning, would he conclude that, during World War I, inflation was caused by unorganized labor (and profiteers) because the rise in prices, profits, and wages caused a wage-price spiral? If this is correct economic analysis, we can abandon consideration of the quantity of money altogether and, by fastening attention to the income-expenditure process, attribute inflation to all kinds of spirals which will include the manufacturer, jobber, wholesaler, retailer, farmer, housewife, landlord, profiteer, and all other members of society who receive and spend larger incomes. I see little value, however, in returning to the obscurantist past and restoring the scapegoat theory of inflation, under the designation of the "income" theory, while relegating into discard what little we know about monetary causes and controls.

In seeking to substantiate that trade-unions were an important inflationary force, Lapkin adduces a number of arguments to show the admitted fact that there is some (inexact) relation between wages and prices. There is, however, scarcely anything in his comment that was not covered in my original article. In much of it, furthermore, he claims that I have neglected or ignored aspects of the question which, as a more careful reading of the article would have revealed, were treated quite fully. He then goes on to repeat in his own words the very points which I had already made. Where his statements are thus simply repetitious, they do not refute but merely confirm my basic position.

Except in one paragraph in which he demonstrates his version of "dynamic" economics, he does not even make a pretense to show that there was any causal relation between wage increases and unionism throughout the period under discussion. In the article which he criticizes, I discussed the effect of wages, as a cost, upon prices under competition, under monopolistic competition, and in regulated industries. Lapkin repeats

my conclusions. I discussed the demand or "pulling" effect of wages as income. Lapkin says that I ignored it. I discussed the redistributionary effects of a greater or smaller wage lag and cited specifically the influence upon the federal budget due to differential rates of taxation; Lapkin reminds us of it again, as if it had not been noticed. That wages had a cost effect in some industries, and a demand effect in general, is one thing. To say, however, that the wage effect is the same as a union effect makes no sense unless we assume that without unions wages would not have risen. This is a rather novel view of wages under competition which he a least ought to demonstrate; and, until such a demonstration is advanced, we are entitled to doubt it. The fact that such a view was widely held in recent years does not prove that it is a self-evident truth.[4] It is rather a part of the pathology of inflation.

After his failure to show any significant relation between unionism and wages, Lapkin concludes with the observation: "Within the framework of a much heightened volume of effective demand, unions exerted a decidedly inflationary effect." I submit that, on the basis of the proof adduced by this writer, we could just as well substitute for the word "unions" in this sentence the words "businessmen," "industrialists," "monopolists," "housewives," "farmers," "utilities," "railroads," "gray marketeers," etc., until we had covered the whole population. And the conclusion would have just about as much validity.

It does not seem possible, therefore, to modify my conclusion that the release of idle balances was the chief cause of the recent inflation and that the wage-price-expenditure-income spiral was the process through which the increased quantity of money exerted its effects. Preoccupation with this process, or with sheer definition, to the exclusion of the quantity of money and of liquid assets, as followed by some expositors of the income theory, whether in traditional form or in Keynesian dress of accelerators, multipliers, and consumption propensities, is likely to lead to just the type of wrong conclusions demonstrated by this critic.[5]

III

Even if we agree that unions did not cause the postwar inflation, we still need to ask whether they, together with other monopolistic interests, constitute an inflationary force which central banks will not be able to control in the future. This view, which is expressed by Bronfenbrenner, has wide acceptance today. It lies at the base of the pleas made by Professor Alvin Hansen and others that organized groups, particularly labor, should show self-restraint in their demands out of a sense of social responsibility, and it is the major premise of the neo-Keynesian contentions that full employment is only possible without inflation in a more or less regimented society.[6]

So far as the future price trend is concerned, aside from excessive demand arising from inadequate taxation in a war economy, I hold that ordinarily monetary and fiscal policy are responsible for inflationary tendencies and not monopoly or organized

[4] "The postwar inflation has been so generally attributed to wage increases, that it is scarcely respectable to doubt the relationship" (Sidney C. Sufrin, *Union Wages and Labor's Earnings* [Syracuse, N.Y., 1950], p. 3). Professor Albert Rees of the Industrial Relations Center, University of Chicago, in his study of "The Economic Impact of Collective Bargaining in the Steel and Coal Industries during the Postwar Period," says: "The evidence indicates that wage increases had little to do with the amount of price increases, although they had a great influence on their timing."

[5] Morton, *op. cit.*, p. 15.

[6] Bronfenbrenner, however, is neither a reformer of human nature nor a believer in regimentation but simply a prophet of doom, who makes his jeremiads pleasant reading by giving them a romantic character, comparing the present generation of creditors who will be wiped out by the "coming" Keynesian inflationary full-employment experiment to the American frontiersmen who were scalped by the Indians (*Journal of Political Economy*, LV [1948], 390). Since Bronfenbrenner proposes to do nothing about it, it should be distinctly understood that, when below we refer to the reformers and regimenters, we do not attribute their views to him.

groups. It is my contention that inflation will ensue in a free economy if we follow the neo-Keynesian policies of maintaining effective demand by monetary and fiscal measures, regardless of the cause of unemployment. Inflation is thus a consequence not of a misapplication of Keynesian policy but of the policy itself, no matter how or by whom it is administered. The inflationary tendency will exist because this policy abandons the historic profit-employment-wage incentive to adjust prices to private demand and substitutes for it the expectation that government will always provide a market for all goods capable of being produced at whatever price results in the market from this expectation. This policy results from Keynes's error in denying that the self-adjusting forces in the economy could restore full employment, though he was correct in his belief that their operation was not under all circumstances strong enough to achieve this result promptly.

Among those neo-Keynesians who hold the self-corrective forces to be inoperative, ineffectual, or even undesirable and who have retained their faith in the single monetary-fiscal remedy which flows from the *General Theory*, there is, however, a growing belief that the Keynesian policy, to be effective without inflation, requires many direct controls. These may be classified as: (1) wage control; (2) allocation of labor; (3) price control; and (4) control over the amount and direction of investment. Although these are advocated to provide full employment in a free society, it seems apparent that they add up to a completely regimented economy.

It should be recalled that Keynes proposed his policies not to bring about socialism but as a substitute for it. He believed that monetary and fiscal policies could provide full employment in a free economy while permitting the direction of labor and resources to be left in private hands.[7] If, then, those who accept the Keynesian theory as a guide to policy have now come to the conclusion that complete controls are in fact necessary, it is clear they are in conflict with Keynes. Either Keynes or his followers must be wrong. It is my view that Keynes erred in neglecting or minimizing the self-equilibrating forces and in setting forth his own theory as a general theory rather than one applicable only to the special case of excessive deflation, of income maldistribution, or other catastrophic disturbances to which the economy could not adjust without excessive harm. I believe, therefore, that the neo-Keynesians are correct in the view that controls are necessary to make the Keynesian system workable even in peacetime under "guaranteed full employment." Of course, such a guaranty has not, and probably will not, be made by any government; but, if it is made, it seems clear that it must have a full complement of controls. Under these conditions, Keynesianism is not a substitute for socialism, as Keynes hoped, but merely a detour on the road to socialism. Many Keynesians are now on this road, and they do not like it; but they will plead for social responsibility, for the destruction of labor unions, or for controls, rather than admit that they have a big hole in their theoretical dike which is gradually undermining the whole structure. It is rather noteworthy that the United States Congress, in refusing to authorize automatic compensatory action in the Full Employment Statute, saw the error of the Keynesian theory before the theorists advocating the policy were aware of it.

We can avoid both peacetime regimentation and inflation only by discarding the panacea of a guaranteed effective demand promised before the event as a general cure for unemployment. Recent aggregative analysis is defective in so far as it neglects the interstitial adjustments which operated many years before 1930 and produced high employment without the monetary policies or state intervention which are now presumed to be necessary. The Keynesian theory, arising as it did from the circumstances of the Great Depression, to which

[7] J. M. Keynes, *The General Theory of Employment, Interest, and Money*, p. 378.

in my mind it was appropriate, is, however, still only a special theory applicable to correcting an imbalance of the aggregates just as the classical theory, as Keynes showed, is also merely a special theory, fitting underemployment conditions created by a failure of the price mechanism to adjust wages and prices to market demand. Neither the old nor the new theories need be discarded but rather be applied on the proper occasion.

IV

We can now turn to the impact of pressure groups on monetary policy and, in particular, to the assertion that these groups will exert inflationary pressure to which the central bank must succumb in order to prevent unemployment. Bronfenbrenner, although admitting that labor acting singly cannot influence monetary policy, believes that unions in conjunction with other groups are capable of destroying the value of money. This result is certainly not impossible, but neither is it necessary. Admittedly, if "Lewis, Fairless, and Kline" have the propensity to inflate that he depicts, coupled with the power claimed, we might just as well write finis to the American dollar. If everyone wants inflation, we shall have inflation. But there is no historical necessity, no wave of the future, which compels us to accept inflationary policies as the price of full employment. This is the concoction of defective theory, not the nature of economic reality. Planned gradual inflation is a contradiction, and full employment by means of inflation, in the long run, is impossible. It is an odd sort of economics which makes self-destroying policies the price of progress and then proceeds to find the responsibility for this contradiction not where it is, in the structure of economic theory itself, but in the nature of human society.

Regardless of any ideology, inflation could come about if central bankers were recreant to their trust and wilfully abandoned their historic duty to maintain a sound currency. We are, however, concerned here only with inflations resulting from policies deliberately carried out by a central bank dedicated to the highest public purpose in the belief that such policies conformed to the national interest. The policy under discussion here is that of easy credit which may be combined with treasury deficits. A central bank might become inflationist either because it innocently adopted the Keynesian policies or because it was forced to adopt them by public opinion or law against its better judgment. It is, however, worth while to discuss the adequacy of policy only if reason will, in fact, have some bearing on its adoption or rejection. In view of the recent potency of Keynesian theories, there is little reason to doubt the influence of ideas in this ambit. It is, therefore, not the economic pressures which should concern us but the validity of the Keynesian theory itself. In this matter, I should hold with Keynes's closing words that "soon or late, it is ideas, not vested interests, which are dangerous for good or evil."[8]

Monetary policy must be adapted to the society in which we live; and, if its results are disastrous, we ought to attribute them to the policy, not to the society itself. Any society, whether monopolistic or competitive, if guaranteed in advance a market for its goods and services, regardless of quality and price, will raise prices while maximizing monetary gain. The Keynesian remedy for depression, while therefore not necessarily inflationary, if pursued ex post, is inflationary if guaranteed ex ante. A policy of bailing individuals out of depression after they have made heroic attempts to help themselves by adjusting their policies is quite different from one which guarantees, in advance, that, no matter what happens, government will come to the rescue. The difference lies in the fact that, in the first instance, the incentive of the society to correct its own excesses remains; in the latter, it is destroyed. This distinction is ignored by those who conceive the ex post policy of rescuing the nation from the 1933 depression to be on all fours with the program of

[8] *Ibid.*, p. 384.

guaranteeing effective demand in advance.

There is, however, some conflict in the selfish and social motivations of citizens of a modern nation. Today, we have a paper currency whose value is wholly dependent on social controls, a condition not envisioned by Adam Smith, who assumed a self-regulating commodity money. How can citizens whose economic activities and interests consist of furthering their own financial gain act in their collective capacity as government to maintain a stable currency? Is this possible, or is it an inherent contradiction of our society? This problem is not unique to currency but is ubiquitous in all collective action controlling individual action, whether of the criminal law or of Federal Reserve policy. Currency managers have always had to fight powerful interests opposed to stability, and what they have done in the past they can do in the future. If, however, they voluntarily accept, or are mandated, to follow neo-Keynesian policies, they will create inflation. The real issue, then, is not the existence of vested interests which will compel inflation but the adequacy of unconditional ex ante compensatory policies.[9]

V

Let us now consider the relation of monetary theory to the prevailing pessimistic conclusions about the future value of money. We lay aside, as beyond our present purview, the conclusions based on the probability of war or its economic equivalent and confine our discussion to inflation resulting from the attempt to maintain a full-employment peacetime economy. Let us recognize initially that the belief in inflation is not congenital, even among businessmen and labor leaders; we should not confuse the desire for more income with the desire for more money. I need not repeat here what I have already said about the inability of any firm to recoup, out of the general income stream, the increased costs which it pays out as wages. That is why it resists wage-induced inflation. Without this limitation, no firm would need to resist any wage demands, and, even in 1950, there was a hundred-day strike!

Present inflationism has an intellectual origin. Intellectuals love paradox, and economists, in particular, the pessimistic paradox. Dealing with scarcity, they find their hopes frustrated by hard facts. Sometimes, however, the frustration lies only in their own heads, not in the world outside. Marx found an inherent contradiction in capitalist exploitation; Keynes discovered a chronic tendency toward unemployment, and now Simons and Bronfenbrenner elaborate the thesis that the powerful beneficiaries of our society—labor, farmers, and industrialists—will destroy that society by wrecking its currency. This is Adam Smith standing on his head. Instead of self-interest acting as the invisible hand leading to beneficent social effect, Marx, Keynes, and now Simons and Bronfenbrenner make it the means of annihilating economic organization. But there is one important difference between these views. Marx and Keynes find the contradiction to be a consequent of basic and, perhaps, immutable human propensities to make a profit and to save too much; whereas Bronfenbrenner and Simons find it in monopoly, an institutional structure which society, so willing, can change. Marx and Keynes, moreover, arrived at the negation of Adam Smith through the belief that the inherent propensities of individual human nature are socially self-contradictory, whereas Bronfenbrenner's conclusion, following Simons, is that the contradiction does not rest in the individual but in the action of organized groups. Thus, while Keynes finds the remedy for unemployment in collective action to maintain investment, Simons finds it in restoring economic action to individuals. I should accept Keynes where the economic imbalance can only be corrected by social action, and I should accept Simons where the imbalance can be eliminated by reliance upon individual incentives. This makes economic policy, at a particular time, dependent upon a correct diagnosis of the malady.

The views of Marx, Keynes, or Simons were not derived from an analysis of man in

[9] Morton, *op. cit.*, p. 33.

society, facing and adjusting to opposing forces, but from postulates about man as an abstract force, bent upon a single aim. The policies advocated by each are all world-shaking, monolithic, and socially and politically revolutionary. Dialectically this is because they each had a thesis with a mistaken antithesis and, hence, an improper synthesis. That is why they could not resolve the contradiction except by policies which are in themselves socially and psychologically self-contradictory.

Whether organized groups must necessarily commit suicide by drowning in a sea of currency cannot, however, be deduced from simple postulates about the nature of monopoly. They must be derived from considering man individually, as an economic agent, and man collectively as a citizen making the rules of the game. For the latter purpose it is necessary to observe economic groups singly and collectively, making their policies in the actual economic and political environment. When this is done, we may not be impressed by their excessive rationality, but neither shall we conclude that they are suicidal. It may be best, therefore, to take the gloomy prognosis of the followers of Henry Simons as the prophetic statement of a problem, as an observation of an abstract tendency needing correction, rather than as a serious prognosis of the actually anticipated course of human history. In a lighter vein, we might also look upon it as the self-indulgence of an irresponsible intellectualism and a theoretical formalism too far divorced from the facts of life.

An analysis, laying the blame for economic evils on trade-unions and monopoly, has a wide appeal. It is easy to succumb to this temptation because it is not likely to receive severe scrutiny. On the contrary, an attack upon such unpopular groups as unions and monopolists is quite welcome and therefore likely to meet with uncritical acceptance. With unions, moreover, there remains a latent appeal to class prejudice, veiled by the apparatus of a faulty economic theory uttered in the noble effort to promote the *summum bonum*, perfect competition. So long as economists are unwilling to admit that the fault for unworkable policies lies with themselves and not with society, they will continue to promote such policies and to lay the blame on others.

The paradoxes of group behavior which are expected to destroy the value of money are, however, not an established observation of actual conduct but rather a phantasm created out of the deficiencies of the full-employment panacea.[10] The behavior of groups, as well as individuals, is likely to be sensible within human limits, when it is restrained by conflicting interests and organized within the limits imposed by a restricted money supply. Once, however, we give up this limitation, we must abandon hope that price stability will result from normal economic behavior. Recent literature clearly indicates that, for the Old Adam in the economic man, some would fain substitute exhortation about social responsibility or legal coercion, whereas others simply give vent to pessimistic utterance.

All this because they would always substitute governmentally maintained effective demand for the interstitial adjustments which in the past were often, though not always, adequate to insure full use of productive factors. This is the essential truth of classical employment theory which, however, contained the flaw of Say's Law, which Malthus recognized but could not correct.[11] If it be true that, because of this deficiency, "Ricardo conquered England as completely as the Holy Inquisition conquered Spain," we must now say that, by remedying this deficiency in Malthus while neglecting the kernel of truth in Ricardo, Keynes has now conquered both England and the United States. We, however, need to free ourselves from both Keynesian and Ricardian yokes and to use the insights of both.[12] If we do this, then we lose the illusion of certainty in

[10] When they observe what has happened, most economists admit that the blame for the postwar inflation does not lie with unions or monopolists, but, when they view the future, some voice this fear.

[11] Keynes, *op. cit.*, p. 32.

[12] Morton, *op. cit.*, p. 36.

diagnosis and the propaganda value of a simple single remedy for all the ills of unemployment. Instead of educating the public to the need of Keynesian remedies, we need go back to the more difficult task of diagnosing the manifold causes of economic fluctuations. Cycle theory can then occupy itself with something else than merely trying to judge the size of government expenditure and its timing. Under the Keynesian diagnosis the compensatory medicine is never in doubt; the only question is how much and how often to administer it, whereas the real issue is whether it is appropriate at all.

The domination of the compensatory approach to economic fluctuations is shown by the recent report of the Committee of the American Economic Association. This group undoubtedly expressed correctly the current state of academic opinion. They tacitly acknowledged the Keynesian conquest and submitted to its authority. But when they were faced with the inherent contradiction in the Keynesian solution, they did not seriously question it but merely concluded that "for the present, reconciling full employment with price level stability within a free-enterprise framework must be regarded as a major unsolved problem."[13] This seems to indicate that they believe the difficulty not to be inherent but one which will yield to further analysis. This is what I doubt, although I admit that no one can deny its possibility. But there is nothing in their entire report which indicates that the reconciliation can be achieved short of a change in human motivation, or in the basic structure of our institutions, either or both of which, if possible, would, in any event, make all Keynesian remedies completely superfluous. So we must conclude that, whereas other economists start with Keynesianism and end with inflationism, exhortation, regimentation, or sheer negation and futility, this group ends with hopeful agnosticism but still an unwillingness to cast much doubt upon the sacred ultimate truth.

If inflation is to be prevented, there is no substitute, in a free society, for limiting the quantity of money, and this lesson is just as appropriate today as it was centuries ago. Furthermore, to prevent expectations from becoming inflationary, we must discard the proposals that effective demand for the total national product will always be maintained by monetary and fiscal policy. Limiting the quantity of money is a better and more reliable method of promoting equilibrium at high employment than to promise a demand sufficient to take all products offered regardless of quality and price and then to rely on "social responsibility" of the public and of unions not to raise prices. Indeed, as we have already seen, it is not long before the homilies on social responsibility turn to threats of regimentation as the only means of keeping a prosperous and stable society. For economic policy, we should rely on basic motivations within the proper institutional framework rather than to look for an ethical transfiguration in others (not even in one's own image) and, failing in this, as indeed we must, to rely on the rule of physical force.

[13] "The Problem of Economic Instability: A Committee Report," *American Economic Review*, September, 1950, p. 536. See, however, Professor Milton Friedman's dissent on pp. 534–35.

BOOK REVIEWS

The Economics of Freedom: The Progress and Future of Aid to Europe. By HOWARD S. ELLIS, assisted by the research staff of the Council on Foreign Relations. With an introduction by DWIGHT D. EISENHOWER. New York: Harper & Bros., for the Council on Foreign Relations, 1950. Pp. xii+549. $5.00.

Late in 1948 the Council on Foreign Relations established, under General Eisenhower as chairman, a group of distinguished Americans to study the political, military, and economic implications of the policies adopted in giving aid to Europe. Financial assistance was provided by the Rockefeller Foundation and the Ford Foundation. The present volume, prepared with the assistance of some ten scholars under the direction of Professor Ellis, is the first fruits of the studies thus begun. It deals primarily with the economic aspects of the European Recovery Program, but appropriate mention is made from time to time of military and political objectives and results.

In *The Economics of Freedom*, Ellis has undertaken the difficult and onerous task of directing a closely co-operating group of scholars, working against time, to produce an integrated account of the relevant aspects of the postwar economic history of Europe as the basis for important recommendations concerning the economic foreign policy of the United States during the next decade. Though there is some internal evidence that the book is the product of a team, there is surprisingly little inconsistency in viewpoint and little unnecessary repetition, though the book is rather bulkier than if it had been the work of one author. The style is consistently clear, though seldom sprightly; in the interest of clarity, theoretical subtleties are eschewed; and the theoretically minded reader will find it necessary, now and then, to supply for himself some of the common-sense preconceptions and assumptions on which a conclusion depends.

Part I examines the aims (ultimately political, though immediately economic) of the ERP, the domestic resources and needs of western Europe, and the place of the program in international trade and finance. The dollar shortage is described as, fundamentally, a problem of enabling Europeans to develop their capital equipment sufficiently to provide ultimately a tolerable level of living—a level, that is, which is consistent with free and stable economic and political organization.

This over-all picture is supplemented, in Part II, by studies of the postwar problems and development under ERP of the United Kingdom, western Germany, France, and Italy. These illustrate very clearly the diversity of postwar circumstances, of national policies, and of long-run problems and objectives exhibited by the countries of western Europe. They are competently done; and the fact that the chapter on Italy seemed particularly fresh may indicate a bias in my interest or gaps in my reading.

The detailed chapter, in Part III, on European economic co-operation describes the efforts to secure co-operation and explains why results, so far, have not been substantial. In addition, it undertakes the more difficult task of explaining, though not of defending, that part of current American policy which approves the formation of free-trade areas (which involve 100 per cent discrimination against nonmember countries) while condemning preferential arrangements, which, after all, involve usually a smaller percentage of discrimination. The argument in general terms appears to be twofold. In the first place, it is held, the creation of a free-trade area is more likely to result in a net reduction in restrictions to trade, while preferential arrangements are more likely to distort trade. Second, it would engender not only international animosity but also intense conflict between United States exporters if the United States were forced to bargain "with Europeans as a group on the character and specific items of a system discriminating against United States exports." The acceptance of a free-trade, as distinct from a low-tariff, area appears to follow logically and necessarily from the policy enunciated by the United States in its proposal for an ITO charter: that discrimination should be abolished and that duties should be reduced. It would be politically difficult for any government of the United States (and perhaps for any government anywhere) to sponsor a proposal to abolish

tariffs; and if tariffs are used to discriminate against imports into the domestic market, should they not be permitted to discriminate against imports into any area within which duties do not exist?

The final chapter contains many important recommendations for United States economic foreign policy during the coming decade, but only a few of them can be mentioned here. When it is remembered that, in the early thirties, inhabitants of the United States quite generally argued that the Smoot-Hawley tariff was a purely domestic matter, it is gratifying that the prevention or moderation of domestic recessions is placed at the very forefront of foreign policy proposals. It is proposed that tariffs should be reduced still further and that other regulations discriminating against foreign goods or services should be modified.

The policies of the International Monetary Fund are criticized, and it is proposed that more flexible exchange rates be permitted or even encouraged, while the fund acts "as watchdog to guard against rates which are *not* being adjusted toward equilibrium, i.e. cases of undervaluation for the purpose of 'exporting unemployment' or overvaluation for the purpose of concealing the effects of inflation or of securing artificially high terms of trade. Against such abuses the Fund would invoke the same remedies it possesses today."

In commenting on the responsibilities of Europe, Ellis reverts to a theme which pervades the volume. Marshall aid is designed in part to strengthen free economic institutions "of which the price system is the most central." I sympathize with the hope that ERP will produce a "viable" Europe without too many permanent direct controls. But the argument of this volume probably will not convince many of those who advocate suppressed inflation as (if one *must* be obstetrical) the sole and unfailing "prophylaxis" for unemployment and who believe, moreover, that countries, exhausted by war in defense of civilization, are justified in endeavoring to gain as much as they can by using discriminatory controls to improve their terms of trade.

As news, a volume such as this is obsolete before it is begun; and a review of it is doubly obsolete. As an analytical and factual background, however, it will assist in the interpretation of current data as they become available. As an advocate of policies, it may influence public attitudes in such a way as to allow or even compel more intelligent governmental action.

G. A. ELLIOTT

University of Toronto

The Rural Economy of New England. By JOHN D. BLACK. Cambridge: Harvard University Press, 1950. Pp. xxiv+796. $7.50.

This is a comprehensive study, in which professor Black establishes a broad background for his subject with an audit of the natural resources of New England, with a review of the development of population patterns in relation to these resources, and with a sketch of the growth of industry and commerce. He makes the transition to the rural economy by discussing present land use and land-use history, by outlining land-ownership patterns and land-management practices, and by relating these developments to the soils of the region. The major part of the book is devoted to an analysis of the organization and evolution of agriculture, with emphasis on production and marketing problems of today. Separate chapters are included on each of the major types of farming, such as dairying, poultry production, vegetable farming, and tobacco growing. There are chapters on part-time farming, woodlands and woodland management, recreational attractions, and levels of living. In conclusion, the author discusses some important issues in public policy oriented toward credit, public finance, and regional development.

Budgets are used extensively as a means of describing typical farms and as a means of showing production and income effects of changes in enterprises. The study is replete with discussions of suggested improvements in farm organization and management. Attention is given, for example, to the management of woodland and to the conditions under which a timber enterprise may be successfully combined with other enterprises. Thus the author presents an outline of the resources and production potentials of rural New England and suggests how and at what costs some of these potentials may be realized. He focuses on shifts in sizes and types of farms, on the production response of agriculture, and on the relationship between rural and urban economy.

The belief sometimes encountered that agricultural or rural incomes in New England are depressed is shown to be mistaken. It is demon-

strated that the region ranks as one of the most favored in the United States, particularly if off-farm income is included in the income analysis and if such perquisites as superior transportation facilities and social services are evaluated. A new procedure (originally reported by W. Malenbaum in the *Journal of Farm Economics*, August, 1941) is developed for measuring income and income change. The procedure consists of constructing price, output, and input indexes for modal-type farms for major systems of farming. The procedure is employed as a method of relating income to size and type of farm and to changes which may be made in management practices on a given farm. The indexes provide a means of identifying the factors associated with income change, and they may be used as a technique of farm-management research.

The desirability of formulating public programs which will encourage efficient development and guard the region against depression is emphasized repeatedly. But the discussion of public policy for the region is relatively brief. There are reasons, however, for this brevity. First, the author has covered most of his general ideas in public policy in other books (such as *Future Food and Agricultural Policy*, by John D. Black and Maxine E. Kiefer [New York: McGraw-Hill Book Co., Inc., 1948]). Second, relatively little work has been done by agricultural economists and others on analysis of costs and benefits of alternative public programs on a regional basis. Third, a comprehensive regional study of this type provides background for policy rather than an analysis of policy proposals. Black and his colleagues are working on a more detailed analysis of Worcester County, Massachusetts, which may develop sharper focus on public programs.

The book is a group product. It is the result of a study conducted at Harvard for several years. Behind it lies the research results from many public agencies. Extensive use is made of the large amount of work done by the New England agricultural experiment stations. The value of this work is recognized by Black in his footnotes and in his dedication of the book to the memory of I. G. Davis, of Connecticut, who was instrumental in developing the type-of-farming method of analysis.

In conclusion, I want to emphasize two general contributions made by the book. First, since the author brings together a large portion of the information relevant to an understanding of the rural economy of the region, the book serves as a reference of high priority for scholars, teachers, businessmen, and others interested in the development of New England. Second, since a distinct method of approach to regional analysis is presented, the book serves as a useful model for other regional studies. Research workers in the social sciences may wish to make special note of the fact that their efforts might be substantially enhanced by organizing existing results of research for other regions into a comprehensive study such as this.

HAROLD G. HALCROW

University of Connecticut

Taxes, the Public Debt, and Transfers of Income. By DONALD C. MILLER. Urbana: University of Illinois Press, 1950. Pp. xi+153. $2.00.

This is a study of federal tax and debt structures as they relate to income groups. Through parallel statistical procedures, all federal taxes and the Treasury disbursements for interest payments in the calendar year 1945 are allocated among six money-income groups of consumer units. On the assumption that a pro rata part of each tax was used to pay interest, this analysis provides an indication of transfer effects upon income flow.

Measurements of this type are tentative, being based, first, upon assumptions of tax incidence and of imputed receipt of most interest payments. A variety of statistical information compiled by government agencies was drawn upon to establish patterns of income, spending, and assent holdings. The data required adjustment, adaptation, and frequently extrapolation, to serve the purpose at hand. However, Dr. Miller's resourcefulness and skill in exploiting the data and his careful analysis are persuasive of the reasonableness of the estimates and conclusions derived. The assumption and methods employed are fully described, and a sprinkling of caveats maintains awareness of probable sources and ranges of error.

The basis of comparison used in the study indicates that in 1945 the progressiveness of tax and debt structures was much the same. The net effect of taxing to service the debt was a comparatively small transfer of income from low- (less than $5,000) to higher-income groups. It is also suggested that this transfer, plus small leakages of interest from the income stream, exerted a slight deflationary effect upon the economy.

Unfortunately, stratification of income groups was confined to classes below $5,000, with the sixth open-ended class including all higher-income units. As compared to other tax-allocation studies, this division permits only a limited description of progressiveness.

The procedures used to allocate taxes to income groups are, in general, similar to those employed for 1938–39 federal taxes by Colm and Tarasov in their TNEC monograph, *Who Pays the Taxes?* Mere reworking of these procedures is illuminating, since it reflects changes in the tax structure which occurred during World War II. In addition, Miller has taken advantage of recent improvements in data and has incorporated several refinements in method.

The attribution of interest to income groups is particularly noteworthy as an exploratory study. Tibor Barna dealt incidentally with this problem in his British inquiry, *Redistribution of Incomes through Public Finance in 1937* (1945), but published estimates of interest distribution in the United States have been lacking. The problem is complex, since more than three-fourths of federal securities are owned by banks, insurance companies, other corporations, and government units. In large part it was necessary to estimate the interest receipts of these institutions and then to assign this interest to consumer units according to assumed indirect benefits. The analysis is of value not only because it throws light on some probable effects of the public debt in 1945 but also because it clearly reveals gaps in statistical information. Procedures developed here may facilitate other more precise measurements in this area of public finance.

DOUGLAS H. ELDRIDGE

Washington, D.C.

Steel Trails to Santa Fe. By L. L. WATERS. Lawrence: University of Kansas Press, 1950. Pp. xiv+500. $4.00.

This addition to the recent output of railroad histories gives us the story of the Atchison, Topeka & Santa Fe. It is concerned not only with the building of the road and its expansion into the longest privately owned railroad system in the world but also with its recent history. It even includes a brief account of the company's efforts to obtain an entrance into St. Louis, an effort which failed because of disapproval by the Interstate Commerce Commission in 1948. In addition to describing the creation of the system, the author reviews the financial history of the company and also devotes considerable space to the technological changes which have characterized its development—the steady improvement of its physical plant as revealed by heavier rails and better ties and ballast, the development of motive power and equipment, and the replacement of bridges, stations, and other buildings with improved structures. There is a brief account of the Santa Fe's expansion into the highway transportation field, and a whole chapter is devoted to the development of Fred Harvey's eating establishments and the Santa Fe's connection therewith.

Although there are numerous small maps in the chapters dealing with the growth of the system, more maps and a better co-ordination of them with the text would have been a great help to the reader.

The book is not only a railroad history, it is a scrapbook on the history of the Southwest. It abounds in interesting sketches and anecdotes about the pioneer stage of the area's development. A chapter on "Peopling the Prairies" describes the colonization efforts of the Santa Fe, which were based on the theory that each new homestead established in the area would add $300 annually to the gross revenues of the company. Considerable detail is given about the history of the Mennonites and their immigration into the Southwest. The book reveals the author's wide background and training in economics and transportation. It is written with a certain dash, which makes it easy reading and which prevents the story from becoming dull, but the chapters on financial history, although written in the same popular style, will doubtless prove difficult to the reader not versed in the vocabulary of corporation finance and accounting.

The volume never fails to sing the praises of the Santa Fe and to marvel at its many achievements. The author, however, reveals that mistakes of overexpansion were made, and he points out that a false showing of earnings and questionable accounting characterized the period of financial difficulties which culminated in the reorganization of 1895.

Where Waters expresses judgments on developments or events, they appear, for the most part, to be well founded. Occasionally, however, a statement creeps in which might not stand up under analysis or which carries implications of

doubtful validity. A statement (p. 416) that regulation has tended to equalize operating time between competing points is hard to believe; the implications of a statement (p. 322) concerning wage policies of the Railroad Administration during World War I are questionable; and some statements regarding railroad taxes (pp. 466–68, and 472) carry implications that are misleading or suggest questionable ideas about the nature of taxes and the theories on which they are based.

D. PHILIP LOCKLIN

University of Illinois

Marx: His Time and Ours. By RUDOLF SCHLESINGER. New York: Augustus M. Kelley, 1950. Pp. xi+440. $4.50.

Marx once said to his son-in-law Lafargue: "It is quite certain that I am not a Marxist." If this remark can be interpreted as a distaste for the disputatious dogmatism so common to Marxists, Schlesinger, too, is no Marxist. Schlesinger has written an almost talmudic exegesis of what Marx said and meant; but he has combined this with a critical dissection of what in Marx is relevant and what is not for the last half of the twentieth century.

In Schlesinger's view the changes required in Marxist thought by historical developments are far from insignificant. The labor theory of value, because of its genesis in a society of small commodity-producers, fails as an explanation of the physiology (though not of the anatomy) of the developed capitalist system. The Marxist concept of class needs revision in the light of the emergence of the peasant and nationality questions. The utopian elements of Marxism—the ultimate nature of society to come—are at least questionable as the "asymptote towards which reality is gradually moving" (p. 432).

Perhaps most importantly from the viewpoint of Marxists' actions, Schlesinger points to the neglect of the "uneven development of capitalism" which led to the expectation that socialist revolution would begin in the most advanced capitalist countries. The occurrence of socialist revolution in Russia, a backward country, has awakened new perspectives. The Marxist scheme must be modified to envisage the spread of revolution among backward countries—first a bourgeois-democratic revolution and then a socialist reformation as the price of economic progress and independence vis-à-vis established capitalism. The transition to world socialism is a later stage, with possible accommodations to gradualist approaches in developed countries. In Schlesinger's view the concept of "socialism in one country" becomes a new internationalism in the Marxist stream of thought.

Despite the necessary doctrinal changes, the Marxist sociology itself, conceived as a methodology and as a system of evaluations in the analysis of the laws of motion of social formations, emerges from Schlesinger's critique virtually unscathed. In this sense Schlesinger remains a Marxist: ". . . we cannot now refuse the basic Marxist statements any more than a serious physicist can be a non-Newtonian, with the further great difference that, in the field of sociology, more generations must pass before an Einstein appears. He will not come before Marx's work has borne all its historical fruits" (p. 433).

Schlesinger has written a valuable, though difficult, book. Its scope is the gamut of Marxist thought—from philosophic origins to party tactics. Its justification is also the reward to its reader, namely, an approach to the understanding of a system of thought which grips, at least officially, large areas of the contemporary world.

Many clichés about Marxist thought are justly exploded. Marxism may be a religion, but it certainly is not Calvinist. Historical materialism does not depend upon the truth of the predominance of the economic motive in individual actions. It is to be judged by its methodological advantages, i.e., in comparison with other theories of history, by their scientific fruits in the analysis of social dynamics.

The weak aspect of Schlesinger's work seems to me to be the sections on Marxist economic theory. On an expository-interpretative level the writings of Dobb (*Political Economy and Capitalism*) and Sweezy (*Theory of Capitalist Development*) are superior. On a critical level Joan Robinson (*Essay on Marxian Economics*) is more incisive. The superficialities of Schlesinger's understanding of modern economic thought are all too apparent. Academic price theory is interpreted as concern with the price of onions as such and not as a theory of economic organization. Keynesianism appears as virtual underconsumptionism. But we must not be too grudging. The well-known weakness of "academic economics"—the absence of a theory of eco-

nomic development—remains as an additional reason for economists to study the problems posed by Marx, despite (in one sense, because of) the inadequacies of the Marxist answer.

NORMAN KAPLAN

RAND Corporation

Employers' Associations and Collective Bargaining in New York City. By JESSE T. CARPENTER. Ithaca: Cornell University Press, 1950. Pp. xviii+419. $4.50.

This title is an understatement. Not only does this study span the entire horizon of collective bargaining in New York City, but the reader easily forgets that research and examples stem from one region only. There seems to be a complete picture of the development, powers, and organization of employers' groups and of the different possible bargaining patterns by shop, firm, industry, market, or union. These are followed by a detailed description of the procedures and strategies of bilateral or multilateral negotiations, including administration and enforcement of agreements. Thus Professor Carpenter takes us through growth, struggles, maturity, and daily problems of labor relations at a sprightly, interesting pace. He concentrates not on the employers' side alone but dwells with impartiality on policies and strategies of the unions across the bargaining table. Hence this book enriches our knowledge of multi-employer collective bargaining.

The raw material is from the welter of small employers and diverse union locals in New York's service trades and light manufacturing—only 2 per cent of which employ more than a hundred men. What an elusive concept "equality of bargaining" turns into in this environment, with small employers dancing to the unions' tune! The powerful force of competition proves to be working with "invisible hands" indeed, since the means used must avoid the light of day. Small wonder that unions were welcomed in so far as they introduced monopolistic elements, or that eventual employers' response was the attempt at joint bargaining. What is more, the problem of cohesiveness is solved only where it is supported openly by the union or indirectly by its game of playing employers against one another. This, in turn, may breed closed employers' associations and more inclusive unions—eventual peaceful agreements thus resulting from monopolistic features on both sides. What interesting conclusions can be drawn in terms of the fate of competitive conditions and of the development of bilateral monopoly!

Carpenter is not given to theorizing. He lucidly describes, abstracting only where he can document. He clarifies conditions favoring the diverse combinations of bargaining units and justifies the institution described as one that furthers industrial peace. But Carpenter implicitly assumes (chaps. x, xi) that a uniform work standard (eliminating all competition regarding labor) is desirable. He hardly refers to its effect on competitive conditions (what is "excessive" competition?) or—an important omission throughout—on consumers and the public. He fails to discuss price effects of uniformly higher wages; and he does not see that employment in the region may be affected, as well as relative allocation between industries. He discusses few economic consequences of his findings. Much of this theoretical reasoning could be found in the Wharton School series on "Industry-wide Collective Bargaining" (especially Pierson's, Kennedy's, Dunlop's, and Lester's contributions).

These omissions may be assets, for they make for readability and uniformity. The deliberate exposition of parallels between unions and employer groups will delight the labor economist, who will recognize the same problems of democracy, decision-making, and external policy, except for the narrow tie between employers as compared with several union functions. The term "union paternalism" (p. 19) is suggestive and worth remembering. The fascinating description of tactics and strategy in the varied possibilities and phases of the contract negotiation battle (chaps. viii, ix) is a rare way of illuminating bargaining processes, even though the subjective aspects have been omitted.

Carpenter has steered in a masterful way between enumeration and journalism. His work should be read by all interested in collective bargaining, even by students. Those given to generalizations about "the union" and "the employer" might reflect on the diversity of conditions and on the occasional reversal of the customary roles.

KIRK R. PETSHEK

Colgate University

Readings in the Theory of International Trade. Selected by a COMMITTEE OF THE AMERICAN ECONOMIC ASSOCIATION. Philadelphia and Toronto: Blakiston Co., 1949. Pp. xvi+637. $5.00.

This extremely useful book, the fourth in the Blakiston series of republished articles, brings together twenty-three articles in the general field of international economics, selected from the world-wide literature accumulated since the first World War. Contributions whose knowledge is as indispensable to the graduate student as to the specialist are here made widely accessible. Volumes of this type are more than "handy"; they should contribute to better-informed discussion and should help in preventing creative energies from being wasted in laborious rediscoveries.

While some postwar articles are included, most of the articles were written in the interwar period or as a result of the ill-rewarded postwar planning effort during World War II. As is pointed out in the excellent Introduction provided by the two co-chairmen of the selection committee, Professors Ellis and Metzler, the interwar period was rich in economic experiences which proved stimulating to the development of international trade theory. The controversy on German reparations with the attendant discussion of the transfer problem and the devaluations of the thirties are cases in point. The effects of bilateralism and of state control of foreign trade on international economic relations are analyzed, with due attention to both economic and political aspects, in two important contributions by Viner and Ellis.

In addition to these responses to current problems, the book is testimony to many advances in the pure theory of international trade. Among the examples it is sufficient to quote the illuminating application of the indifference-curve technique to international trade problems by Leontief and Scitovszky, the critiques of traditional theory by Graham and Williams, and the analysis of the relationship between international trade and income distribution by Heckscher and Stolper-Samuelson. The adaptation of the theory to Keynesian thought is noticeable not only in the articles by Salant and Robinson but also in Nurkse's systematic survey of the conditions of international monetary equilibrium. While the volume does not show evidence of any close integration of the theory of monopolistic competition into international trade theory, Scitovszky's article brings out some remarkably interesting and close parallels between oligopolistic behavior and commercial policy.

At the same time the book offers much material which is of direct interest and usefulness to the current practitioner of international economics. The contribution by Polak, although written during the war, can be read with profit by all those who are interested in the balance-of-payments problems of underdeveloped countries. The pessimistic article of D. H. Robertson on the future of international trade, one of his most brilliant, provides important background for the current attempts at safeguarding the division of labor among industrially advanced countries by the creation of closer forms of economic co-operation and "integration." Finally, the problem of the dollar gap—so overpowering yesterday, though already somewhat passé today—is illuminated not only by the last article reprinted in the book (by Haberler) but also by Robinson's and Machlup's articles on exchange rates and by the whole discussion of the transfer problem. (From the purely economic point of view, there is an obvious similarity between economic aid programs and reparation payments.) In connection with the dollar problem, one might, however, have welcomed the inclusion in the book of Kindleberger's article on international monetary stabilization (published in 1943 in *Postwar Economic Problems*, ed. Seymour Harris) in which he presented a theoretical justification for a permanent tendency toward a world dollar shortage. In spite of the controversial character of parts of Kindleberger's argument, the article has a definite place in the history of contemporary thought on international economic problems.

An exhaustive classified bibliography of articles on international economics which is appended at the end of the volume further enhances the value of the book.

ALBERT O. HIRSCHMAN

Washington, D.C.

Monetary Problems of an Export Economy: The Cuban Experience, 1914–1947. By HENRY CHRISTOPHER WALLICH. Cambridge: Harvard University Press, 1950. Pp. xiv+357. $5.00.

This book falls into two well-defined parts: it tells the monetary and banking history of Cuba from 1914 to 1947 and it analyzes that history

within the framework of Keynesian terminology and conceptions.

Before 1932 Cuba not only was on the dollar standard; but, except for a limited amount of Cuban gold and silver coin, the country's hand-to-hand cash consisted entirely of United States currency. Furthermore, after the collapse of 1920, almost all of the banking business in the island was done by the branches of American and Canadian institutions. Cuba had no central bank during this period. Beginning in 1932, and continuing up to 1947, the Cuban government, largely for fiscal reasons, put into circulation large amounts of irredeemable and fiduciary silver pesos and silver certificates, thus giving Cuba a double monetary standard. From 1932 to 1944 the peso fluctuated in terms of the dollar, going as low as 82 cents in 1939 and rising above $1.03 in 1942. Dr. Wallich gives a painstaking and informative account of this development, without, however, making any reference to a comparable American experience with an expanding fiduciary silver circulation under the Bland-Allison and Sherman acts.

The analytical section applies to the Cuban experience the Keynesian methodology, but it is modified by the assumption that exports and imports play the same role in Cuban economic life that investment and saving do in a more mature economy. This analysis is well done, although I feel that Wallich does not give sufficient attention to the ways in which exports and imports in Cuba might have effects different from those that investment and savings have elsewhere. From his analysis of the forces dominating the Cuban economy, and of the availability of domestic goods that could be substituted for foreign goods on the basis of price changes, Wallich concludes that the adjustment in the Cuban balance of payments is brought about almost entirely by income changes, originating outside of Cuba in the market for sugar (p. 215), and that Cuba can do practically nothing to influence exports by its monetary policy.

Chapter xiii on "The Pros and Cons of Depreciation" is a careful and judicious appraisal of probable effects of depreciation of the Cuban currency in 1920–21, 1932–33, and 1938–39, in terms of the probable elasticity of demand for and supply of Cuban exports and imports. Wallich concludes that depreciation would have been desirable in 1920–21; that in the early 1930's "the case for depreciation was less clear-cut, although on the whole stronger than the case for maintaining stability" (p. 251); and that in 1938–39 the case for depreciation was doubtful (p. 252). On balance, however, after an analysis of the difference in the international effects of exchange control in a country like Cuba and in a country whose currency has international acceptance, he concludes that Cuba could, in an emergency, use exchange control with benefit to herself and with little injury to multilateral trading systems.

This book is a scholarly contribution to the economic history of Cuba and to the understanding of the problems of international adjustment in a country whose economic welfare is so closely tied up with the world market for a product over whose price it has little control. It does well what it attempts to do, but I wish that the author had done more to put the Cuban experience into a broader historical setting. An example of the scant attention to history is the assumption, in the discussion of the central banking policy appropriate in a country like Cuba, that under the old gold standard the "rules of the game" had required a central bank to expand with a growth of international reserves and to contract with a decline in these reserves. The offsetting operations, that Wallich believes are appropriate for a central bank in Cuba, even though in his opinion "violating the ancient rules of the game" (p. 306), have more precedents in earlier literature and central banking operations than the discussion in this book would suggest.

FRANK WHITSON FETTER

Northwestern University

Social Economy and the Price System: An Essay in Welfare Economics. By RAYMOND T. BYE. New York: Macmillan Co., 1950. Pp. viii+350. $3.50.

Professor Bye presents this essay as a "combination of theoretical, institutional, and welfare economics, aimed at appraising the possibilities of pricing as a device for guiding the economic process in welfare directions." The operations of the price system are analyzed critically with reference to "sound social economy" over the entire range of economic problems: organization and allocation of resources, the level and stability of employment, capital investment, and income distribution.

Bye's criteria of sound social economy are ultimately sociological: group survival, biological and, especially, institutional. For Americans

survival is "a question of maintaining a whole set of political, social and economic institutions under which we have prospered." Survival requires (1) individual efficiency; (2) effective group organization; and (3) internal cohesion. This in turn requires a high level of real income and equity in its distribution.

Bye rejects the assumptions that individual choices are satisfactory criteria of welfare and that welfare economics cannot deal scientifically with questions of better or worse income distribution. Along both these lines, as he sensibly points out, "it should be possible to arrive by empirical methods at a fairly accurate conception of the goals toward which people do *in fact* strive, and medicine and psychology should be able to tell us what are the essential physical and emotional needs of human beings."

He then proceeds to formulate a set of general economic principles to conform with the above requirements. These partially parallel those commonly accepted by orthodox theory but include some notable additions. Added to efficiency and economy, full employment, and provision for the future are principles of a "guaranteed minimum," social use of "surplus," and "development of talent." The influence of the economics of Hobson, Keynes, and Beveridge is evident in the changes made from "classical" criteria.

The book is chock-full of prescriptions for improving the welfare of mankind, ranging from consumer education and control of advertising to basic monetary reforms, public control of investment, comprehensive economic planning, and an enlarged sector of collective ownership and management.

Bye seems to vacillate between writing for his fellow-economists, the student, and the general public. He hopes that the book "may be of interest to economists of all schools," because, while an excursion into welfare and institutional economics, "it builds on a foundation of economic theory of the traditional kind." Economists will be interested but not often persuaded. The theory is not rigorous enough, and its application to the very wide range of problems somewhat too uncritical.

The theorist will be reluctant to accept prescriptions based on diagnoses: for example, that average-cost pricing is the proper norm in the long run *in all industries;* that "the output of each plant should be kept at the point of lowest average costs"; plus a partial misunderstanding of the Pigovian theory of deviations between private and social costs. Similarly, the theoretical underpinning of Bye's all-out advocacy of "100 per cent Money" is weak, including such propositions as that expansion of bank credit is *always* inflationary and distorting, while noncommercial banking institutions are *entirely* neutral in the savings-investment equilibrium.

As for the author's institutional theory, one must question whether he has analyzed fully the implications of what we know about group behavior when he views optimistically the possibility that industrial planning and self-regulation, combined with governmental supervision, will promote his economic welfare objectives. And his belief that deliberate reduction of price flexibility brought about by industrial concentration and planning is institutionally compatible with a policy increasing somewhat both upward and downward flexibility of wages (to help prevent "minimum wage unemployment") is certainly insufficiently grounded on the sociology of industrial and political relations. Yet Bye is unwilling to accept "inflationary" monetary and fiscal remedies and feels that we would do better to abandon capitalism for collectivism, "instead of trying to help it limp along with the aid of so poor a crutch." Are these sound institutional judgments?

But Bye is to be complimented for essaying this job. For its whole spirit of fearless consideration of alternatives one can only have the greatest admiration. Although economists cannot merely pass the prescriptions on to their students, they should find the book an excellent one to use in intermediate courses for a critically conducted survey of the difficulties of using theory in policy formation.

JAMES S. EARLEY

University of Wisconsin

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